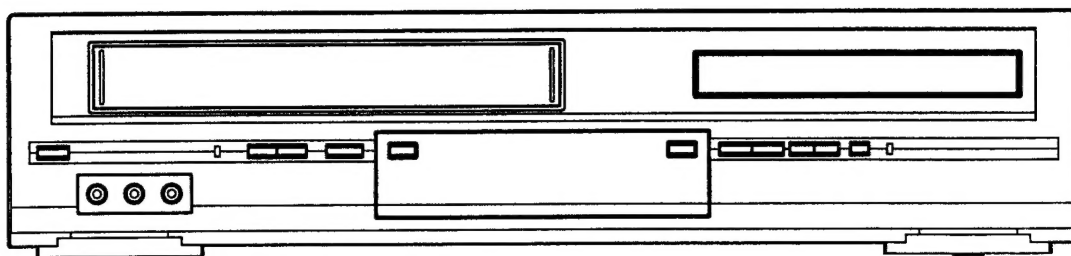
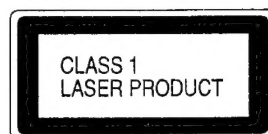


SERVICE MANUAL

Teil 1 **ORION**

DVD/VR-2961 / 2963 SI

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



ORIGINAL CHASSIS CODE A

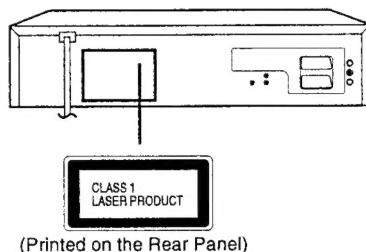
Best. Nr. SM2963

IMPORTANT WARNING

CAUTION:

DVD PLAYER IS A CLASS 1 LASER PRODUCT. HOWEVER THIS PLAYER USES A VISIBLE LASER BEAM WHICH COULD CAUSE HAZARDOUS RADIATION EXPOSURE IF DIRECTED. BE SURE TO OPERATE THE PLAYER CORRECTLY AS INSTRUCTED.

THE FOLLOWING CAUTION LABEL IS LOCATED ON THE REAR PANEL OF THE PLAYER.



WHEN THIS PLAYER IS PLUGGED TO THE WALL OUTLET, DO NOT PLACE YOUR EYES CLOSE TO THE OPENING OF THE DISC TRAY AND OTHER OPENINGS TO LOOK INTO THE INSIDE OF THIS PLAYER.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a \triangle mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE

The MODEL NUMBER can be found on the back of each product and the CHASSIS CODE can be found at the end of the SERIAL NUMBER.

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

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TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet, Front Cabinet and DVD Block and the Fig. 1 below can be seen.
(Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS**.)
2. Remove one screw of the Loading Motor from the insert hole for screw driver and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
(Refer to Fig. 2)
4. Rotate the Clutch Ass'y either of the directions to wind the Video Tape in the Cassette Case.
5. Repeat the above step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.

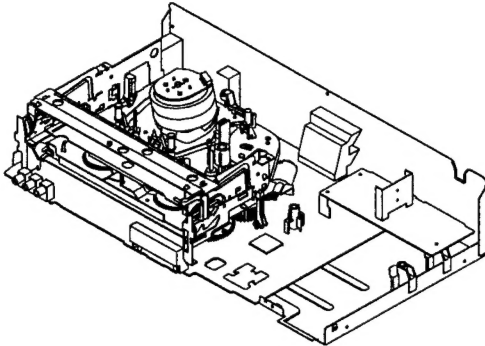


Fig. 1

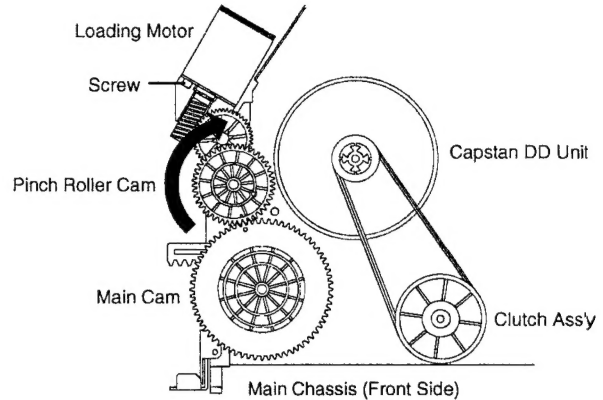


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet and Front Cabinet. (Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS**.)
2. Rotate the gear of Deck CD section in the direction of the arrow by hand, remove the disc from Deck CD. (Refer to Fig. 3)

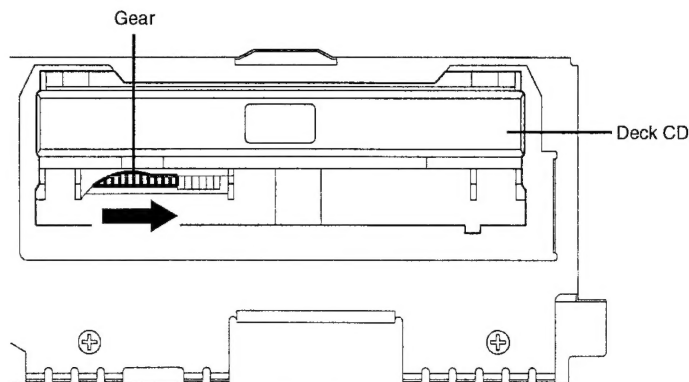


Fig. 3

PARENTAL CONTROL - RATING LEVEL 4-DIGIT SECURITY CODE CANCELLATION

If the stored 4-digit security code in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '2' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 3 seconds.
5. The On Screen Display message 'PASSWORD CLEAR' will appear.
6. The 4 digit password has now been cleared

GENERAL SPECIFICATIONS

G-1	Outline of the product		DVD VIDEO PLAYER & VHS Player / Recorder
G-2	DVD System	Color System	PAL
		Disc	DVD, CD-DA, CD-R/RW, VIDEO CD, SVCD
		Disc Diameter	120 mm, 80 mm
		Deck	Front Disc Loading
		Disc Loading System	3 Motors
		Motor	1-Lens 2-Beams System
		Pick up	135min (4.7GB)
		Playback time (Max)	245min (8.5GB)
		DVD 1-Layer	74min
		DVD 2-Layer	74min
		CD	
		VIDEO CD	
		Search speed	2-20 times / 4 step
		Fwd	Actual 2-45 times (DVD, VIDEO CD)
G-3	VCR System	Rev	Actual 2-20 times / 4 step
			Actual 2-45 times (DVD, VIDEO CD)
			Actual 4-40 times (CD)
		Slow speed	1/7 - 1/2 times
		Fwd	Actual --
		Rev	Actual --
			Actual --
		System	VHS Player / Recorder
		Video System	PAL
		Hi-Fi STEREO	Yes
		NTSC PB(PAL60Hz)	Yes
		Deck	OVD-7
		DECK Loading System	Front
		Motor	3
G-4	Tuning System	Heads	4Head
		Video Head	
		FM Audio Head	2Head
		Audio /Control	Mono/Yes
		Erase(Full Track Erase)	Yes
		Tape	SP/LP
		Speed	-
		Rec	SP/LP
		NTSC	SP
		Play	SP
		PAL	FF:1'12"/REW:1'12"
		NTSC	E-180
		Fast Forward / Rewind Time (Approx.) at 25oC	with Cassette SP=3x, 5x
		Forward/Reverse	SP/LP=5x, 7x / 7x, 13x
G-5	Power	Picture Search	Yes
		PAL or SECAM	1/5, 1/10, 1/30
		Frame Advance	
		Slow Speed	
		Broadcasting System	CCIR System BG
		Tuner and	1Tuner
		Receive CH	Oscar(W/HYPER)
		System	F-Synth
		Destination	VHF/UHF 75 OHM
		Tuning System	E2-E4, X-Z+2, S1-S10, E5-E12, S11-S41, E21-E69
		Input Impedance	38.9 MHz
		CH Coverage	33.4 MHz
		Intermediate	5.5 MHz
		Picture(FP)	
G-6	Regulation	Sound(FS)	
		FP-FS	
		Auto Tuning Method	C.C.I.R CH PLAN
		Auto Guide Ch Area	-
		Preset CH	80CH
		RF Converter Output	Yes
		Channel	23-69 CH
		Level/Impedance	73 dBu / 75 Ohm
		Sound Selector	No
		Stereo/Dual TV Sound	G.ST/NICAM DUAL
		Tuner Sound Muting	Yes
		Power Source	230V 50Hz
		AC	-
		DC	
G-7	Temperature	Power Consumption	20 W at 230V 50Hz
			5 W at 230V 50Hz
		Stand by	-- W
		Per Year	
G-8	Operating Humidity	Protector	Yes
		Power Fuse	CE
		Safety	CE
		Radiation	
		Operation	5oC - 40oC
		Storage	-20oC - 60oC
			Less than 80% RH

GENERAL SPECIFICATIONS

G-9	Signal	Video Signal	Output Level	1 V p-p/75 ohm (DVD,VCR)	
			S/N Ratio (Weighted)	65 dB(DVD)	53 dB(VCR)
			Horizontal Resolution	500 Lines (DVD) 240 Lines(VCR at SP)	
		RGB Signal	Output Level	0.7V p-p / 75 ohm	
		Audio Signal	Input Level Microphone	-	
			Input Level Line	-3.8 dBm/ 50k ohm(VCR)	
			Output Level Line	-3.8 dBm/ 1k ohm (VCR, 0dB=0.775Vrms)	
				-12dB/ 1k ohm (DVD, -20dBFs 0dBFs=2.0Vrms)	
			Digital Output Level	0.5 V p-p / 75 ohm(DVD)	
			S/N Ratio at (Weighted)	90dB(DVD)	42dB(VCR at SP)
			Harmonic Distortion (1KHz)	0.06% (DVD)	1.5% (VCR at SP)
			Typical		
			Frequency Response : DVD Mode at DVD	4 Hz - 22 KHz	
			DVD Mode at VIDEO CD	4 Hz - 20 KHz	
				4 Hz - 20 KHz	
			DVD Mode at CD	4 Hz - 20 KHz	
			VCR Mode at SP	100Hz - 10 KHz	
			VCR Mode at LP	100Hz - 5 KHz	
			VCR Mode at SLP	-	
		Hi-Fi Audio Signal	Dynamic Range : More than	75dB	
			Frequency Response	20Hz ~20kHz	
			Wow And Flutter : Less than	0.01 %Wrms	
			Channel Separation : More than	60 dB	
			Harmonic Distortion : Less than	0.01	

GENERAL SPECIFICATIONS

G-10	On Screen Display (DVD)	Menu		Yes
			Menu Type	Character
			Language	Yes
			Menu	Yes
			Subtitle	Yes
			Audio	Yes
			Picture	Yes
			TV Screen Size	Yes
			OSD Display On/Off	Yes
			Slide Show	No
			Interval Time	No
			JPEG Interval	Yes
			Select Files	Yes
			Sound	Yes
			DRC (Dynamic Range Control)	Yes
			dts Decode	No
			Output (5.1ch/ 2ch)	No
			Surround On/Off	No
			Center On/Off	No
			Sub Woofer On/Off	No
			Parental	Yes
			Password Lock/Un Lock	Yes
			Rating Level	Yes
			Other	Yes
			OSD Language (Set up Language)	Yes
			Output (RGB/Video)	Yes
			Open	Yes
			Close	Yes
			No disc	Yes
			Reading	Yes
			Play	Yes
			Still/Pause	Yes
			Stop	Yes
			Prohibit Mark	Yes
			Step	Yes
			SKIP >>	Yes
			SKIP <<	Yes
			Random	Yes (CD,MP3,Video CD,SVCD,WMA,JPEG)
			Repeat	Yes
			Slow+ ##	Yes
			Slow- ##	No
			Search+ ##	Yes
			Search- ##	Yes
			Jump	Yes
			Resume	Yes
			Title No.	Yes
			Chapter No.	Yes
			Track No.	Yes
			Time	Yes
			Sub Title No.	Yes
			Angle No.	Yes
			Vocal On/Off	Yes
			Audio No.	Yes
			Audio Stereo L/R	Yes (Video CD,SVCD)
			Zoom	Yes
			Marker No.	Yes
			Program Play Back	Yes (CD,MP3,Video CD,SVCD,WMA,JPEG)
			Spatializer On/Off	No
			MP3	
			Folder Name	Yes
			File Name	Yes
			File No	Yes
			Time	Yes
			Track No	Yes

GENERAL SPECIFICATIONS

	On Screen Display(VCR)	Menu	Menu	Type	Yes	Character
			ATS			No
			Timer Rec Set		Yes	
			Auto Repeat On/Off		Yes	
			VCR Set-Up		Yes	
			NICAM Auto/Off		Yes	
			Audio Mix On/Off		Yes	
			Color System			No
			CH Set-Up		Yes	
			CH Tuning		Yes	
			Auto Tuning		Yes	
			CH Mapping		Yes	
			Guide CH Set			No
			System Set-Up		Yes	
			Clock Set		Yes	(Calendar 24H)
			Language		Yes	
			AV2 DEC/AV (LINE)		Yes	
			G-CODE(or SHOWVIEW or PLUSCODE)No. Entry		Yes	
			NICAM 1/2,NICAM Off,Audio Output		Yes	
			Stereo,Audio Output,Bilingual		Yes	
			Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In/Zero Return (Symbol Mark)		Yes	
			Others	CH/AV (LINE)	Yes	
				Clock	Yes	
				Repeat		No
				Tape Counter	Yes	
				Index	Yes	
				Tape Speed	Yes	
				Manual Tracking (Bar Setting)	Yes	
				Hi-Fi	Yes	
				VPS		No
				PDC		No
				TEST Signal	Yes	
G-11	OSD Language				English/French/Spanish/German/Italian	
G-12	Clock,Timer and Timer Back-up	Calendar			1990/1/1 ~ 2081/12/31	
		Timer Events			8 Program/ 1 Month	
		One Touch Recording Max Time			6 Hours	
		OTPB Valid Time				No
G-13	Display	DISPLAY			30	Min
				DISPLAY type	LED Module (Green, "Rec" &Timer symbol = Red)	
				Clock/Counter,CH,Timer Rec,OTR, Play Rec,FF(Cue),Rew(Rev),Stop,ATR,Eject		No
				VCR	Yes	
				DVD	Yes	
				CD	Yes	
				Clock	Yes (24h)	
					AM	No
					PM	No
				Counter	VCR	Yes (hour:min)
					DVD	Yes (hour:min)
					CD	Yes (min:sec)
				Counter Remain		No
				Play	Yes	
				Stop		No
				Rec	Yes	
				FF / Cue		No
				REW /Review		No
				Pause/Still	Yes	
				OTR (ITR)		No
				T-Rec	Yes	
				Chapter		No
				TITLE		No
				TRACK	Yes	
				Repeat		No
				Hi-Fi		No
				SP		No
				LP		No
				SLP		No
				CH	Yes	
				RF Output CH	Yes	
				Auto Tuning	Yes	
				Eject	Yes	
				Tape In	Yes	
				Remocon Custom Code		No

GENERAL SPECIFICATIONS

G-14	Remote Control	Unit		RC-FI		
		Glow in Dark Remocon		No		
		Power Source	Voltage (D.C) UM size x pcs	3V UM-3 x 2 pcs		
		Total Keys		50	Keys	
		Keys	Power	Yes		
			DISPLAY/CALL	Yes		
			EJECT	Yes		
			OPEN/CLOSE	Yes		
			1	Yes		
			2	Yes		
			3	Yes		
			4	Yes		
			5	Yes		
			6	Yes		
			7	Yes		
			8	Yes		
			9	Yes		
			0/AV	Yes		
			CH+	Yes		
			CH-	Yes		
			SHOWVIEW/PROGRAM PROGRAM	Yes	No	
			TIMER REC	Yes		
			REC/OTR	Yes		
			MARKER/SPEED	Yes		
			JUMP/ZERO RETURN	Yes		
			CLOCK / COUNTER	Yes		
			COUNTER RESET	Yes		
			TV/VCR	Yes		
			E.A.M.		No	
			REC.END.SEARCH		No	
			VCR	Yes		
			DVD	Yes		
			SET UP/MENU	Yes		
			DVD MENU	Yes		
			UP	Yes		
			DOWN	Yes		
			LEFT / TRACKING-	Yes		
			RIGHT / TRACKING+	Yes		
			ENTER / SELECT	Yes		
			TITLE	Yes		
			RETURN	Yes		
			STOP	Yes		
			PLAY	Yes		
			PAUSE /STILL/STEP	Yes		
			SKIP- / INDEX-	Yes		
			SKIP+ / INDEX+	Yes		
			REW(Review)/SEARCH-	Yes		
			FF(Cue)/SEARCH+	Yes		
			CANCEL	Yes		
			REPEAT A-B	Yes		
			ZOOM	Yes		
			SLOW(Forward)	Yes		
			ANGLE	Yes		
			PLAY MODE	Yes		
			SUBTITLE	Yes		
			AUDIO	Yes		

GENERAL SPECIFICATIONS

G-15	Features (DVD)	Auto Power Off		No
		Parental Lock	Yes	
		Progressive Video Out		No
		Video CD Playback	Yes	
		SVCD Playback	Yes	
		Overlay Graphics And Text		No
		Command List		No
		Entry Point Jump		No
		MP3 Playback	Yes	
		WMA Playback	Yes	
		JPEG Playback	Yes	
		Digital Out	(Dolby Digital)	Yes
			(MPEG)	Yes
			(PCM)	Yes
			(DTS)	Yes
	Down Mix Out		(Dolby Digital)	Yes
			(DTS)	
				No
		Spatializer (N-2-2)		No
		Dynamic Range Control	Yes	
	Screen Saver			No
		Auto Stop		No
	Features (VCR)	Auto Head Cleaning	Yes	
		Auto Tracking	Yes	
		Index Search	Yes	
		HQ (VHS Standard High Quality)	Yes	
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes	
		Auto Repeat	Yes	
		Auto Power Off		No
		VIDEO PLUS+ (SHOWVIEW, G-CODE)	Yes	
		Auto Set Up (CH Auto Set Up/ Auto Clock)		No
		ATS		No
		PDC		No
		VPS		No
		Remote Control Code 1/2/3/4		No
		SQPB (PAL SP Mode Only)		No
		CM Skip(30sec x 6 Times)		No
G-16	Accessories	Copy (Disc to Tape)	Yes (by Conditioning)	
		Owner's Manual	Yes	
		Language	German	
		w/Guarantee Card	Yes	
		Remote Control Unit	Yes	
		Dew Caution Sheet		No
		Battery	Yes	
		UM size x pcs	UM-3 x 2 pcs	
		Tape Rewinder		No
		Safety Tip		No
		Toll Free Insert Sheet		No
		Quick Set-Up Sheet	Yes	
		Information Sheet	Yes	
		75 Ohm Coaxial Cable	Yes (0.9m)	
		type	Double shield	
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		Registration Card		No
		21pin Cable (Double Shield)	Yes	
		300 ohm to 75 ohm Antenna Adapter		No

GENERAL SPECIFICATIONS

G-17	Interface	Switch	Front	Power	Yes	
				Play	Yes	
		Eject (VCR)	Yes			
		Stop	Yes			
		Rec/OTR	Yes			
		Open/Close (DVD)	Yes			
		CH +	Yes			
		CH -	Yes			
		FF/ Search(>>)	Yes			
		Rew/Search(<<)	Yes			
		Still/Pause		No		
		Shuttle(Search/REV/FWD)		No		
		DVD/VCR	Yes			
		Main Power SW		No		
		Rear	Attenuator		No	
			Video/RGB Selector		No	
			RF Out(Slide SW)		No	
			Main Power SW		No	
		Volume	Phones Volume		No	
			Mic Volume		No	
			Echo Volume		No	
			Rec/OTR		No	
		Terminals	Front	Video In	RCA x1(Yellow)	
				Audio In	RCA x 2(Stereo, White/Red)	
		Rear	Video Output		No	
			Audio Output	RCA x 2(Stereo, White/Red) Coaxial x 1 (Digital Audio,DVD Signal Only)		
			Video Input		No	
			Audio Input		No	
			Optical Digital Audio Out (Option)		No	
			Euro Scart	2SCART		
			Ext Speaker		No	
			VHF/UHF Antenna Input/Output	DIN Type		
			AC Inlet		No	
			Indicator	LED	Power	
		Rec				No
		T-Rec				No
		TV/VCR				No
		DVD			Yes (GREEN)	
		VCR			Yes (GREEN)	
		Surround				No
		Level Meter				No

G-18	Set Size	Approx.	W x D x H (mm)	430 x 253 x 99
------	----------	---------	----------------	----------------

G-19	Weight	Net (Approx.)	4.0 kg(8.8 lbs)
		Gross (Approx.)	5.0 kg(11.0 lbs)

G-20	Carton	Master Carton	No
		Content	--- Sets
		Material	--- / ---
		Dimensions W x D x H(mm)	---
		Description of Origin	---
		Gift Box	Yes
		Material	Single/Full Color
		W/Color Photo Label	No
		Dimensions W x D x H(mm)	497 x 360 x 180
		Pulp Package	No
		Design	As Per BUYER 's
		Description of Origin	No
		Drop Test	Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
		Height (cm)	80 cm

G-21	Material	Container Stuffing	1,985 Sets/40' container
------	----------	--------------------	--------------------------

G-21	Material	Cabinet	Front	PS 94HB
		PCB	Non-Halogen Demand	No
			Eyelet Demand	No

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: TOP CABINET AND FRONT CABINET (Refer to Fig. 1-1)

1. Remove the 5 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connector: (CP651).
4. Unlock the 8 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 2 screws ③.
7. Remove the Operation PCB in the direction of arrow (C).

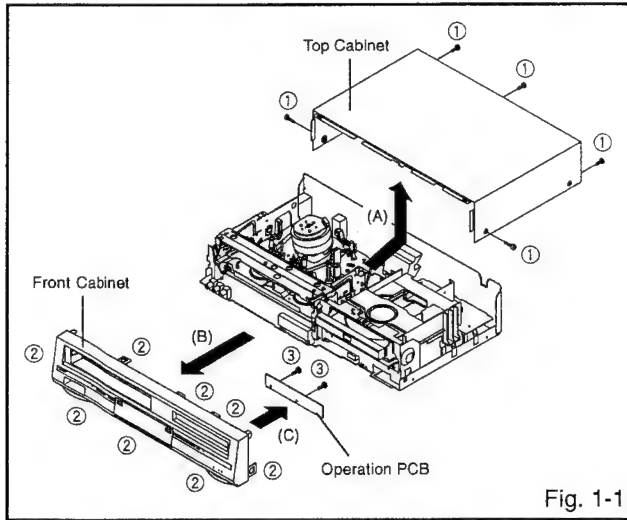


Fig. 1-1

1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

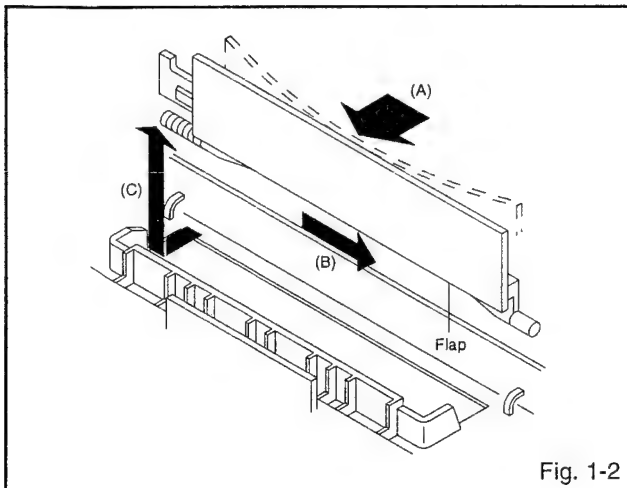


Fig. 1-2

1-3: DECK CD (Refer to Fig. 1-3)

1. Make the short circuit on the position as shown Fig. 1-3 using a soldering. If you remove the Deck CD with no soldering, the Laser may be damaged.
2. Unlock the support ① and remove the Deck Top Holder in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the 2 screws ③.
5. Disconnect the following connectors: (CP2301, CP2302, CP2601).
6. Remove the Deck CD in the direction of arrow (B).
7. Remove the 3 screws ④.
8. Remove the Front Angle in the direction of arrow (C).

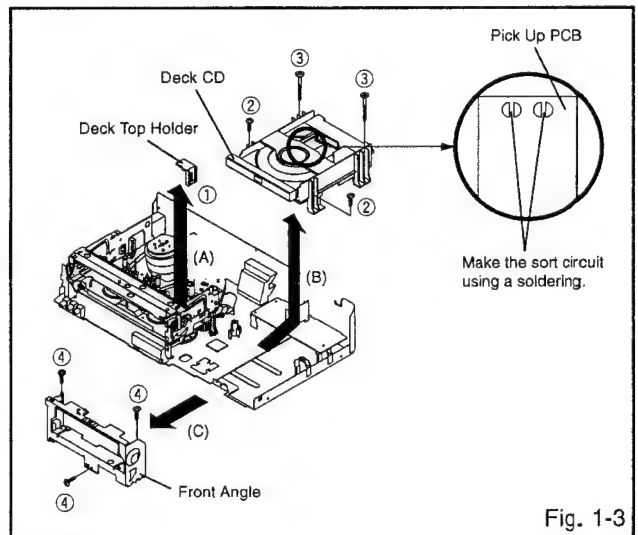


Fig. 1-3

NOTE

When the installation of the Deck CD, remove all the soldering on the short circuit position after the connection of Pick Up PCB and VCR/DVD PCB connector.

1-4: VCR/DVD PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Disconnect the following connector: (CP502).
4. Remove the Power PCB in the direction of arrow.

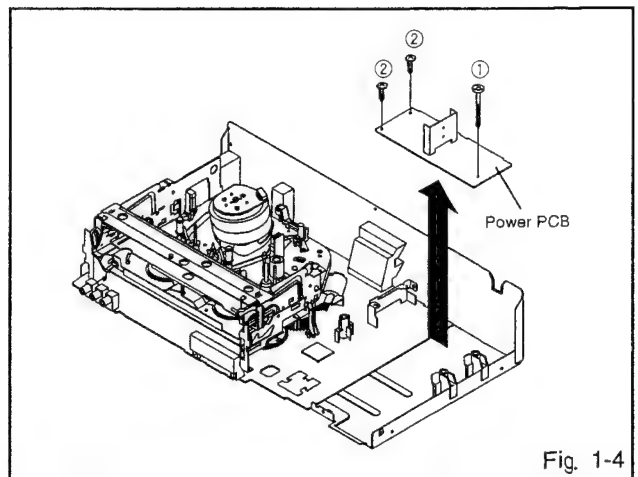


Fig. 1-4

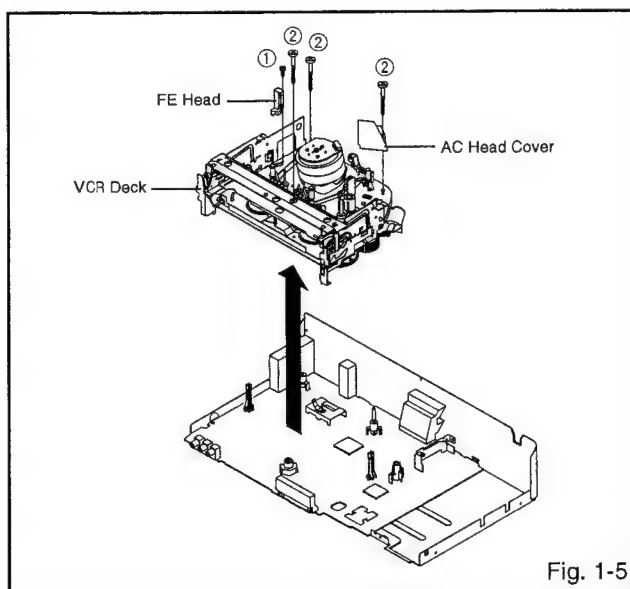
DISASSEMBLY INSTRUCTIONS

1-5: VCR DECK (Refer to Fig. 1-5)

NOTE

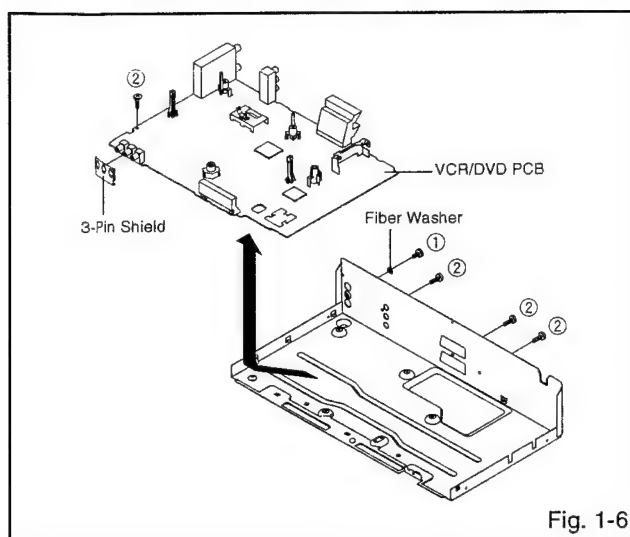
Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the screw ①.
2. Remove the FE Head.
3. Remove the 3 screws ②.
4. Disconnect the following connectors: (CP101, CP102, and CP3001).
5. Remove the AC Head Cover and VCR Deck in the direction of arrow.



1-6: VCR/DVD PCB (Refer to Fig. 1-6)

1. Remove the screw ① and Fiber Washer.
2. Remove the 4 screws ②.
3. Remove the 3-Pin Shield.
4. Remove the VCR/DVD PCB in the direction of arrow.



DISASSEMBLY INSTRUCTIONS

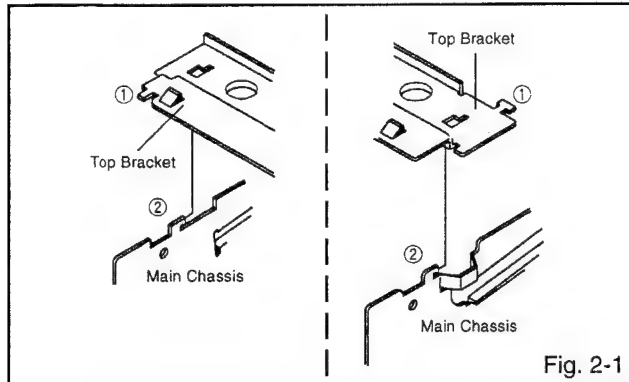
2. REMOVAL OF VCR DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

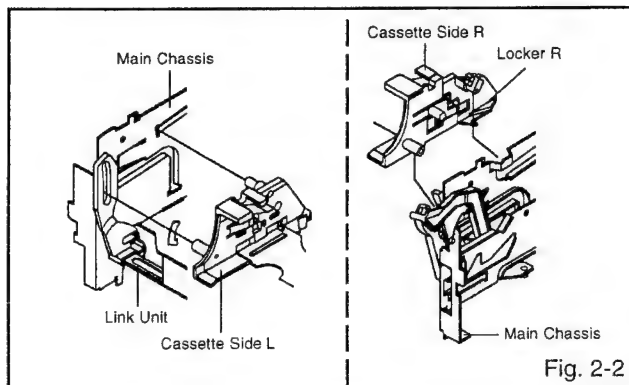
NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.



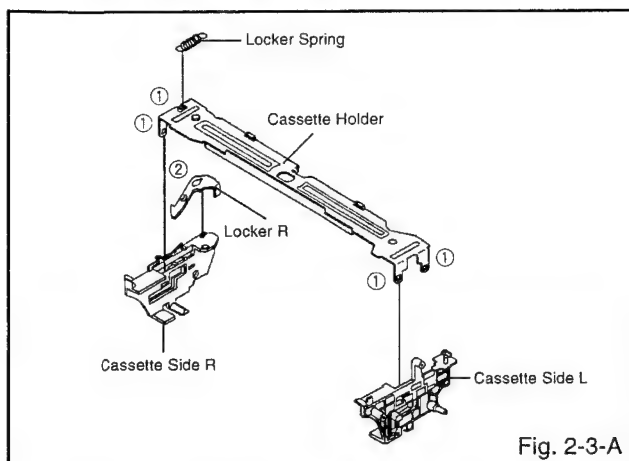
2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.



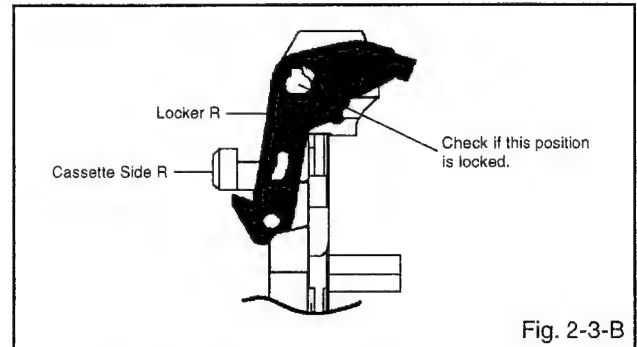
2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.



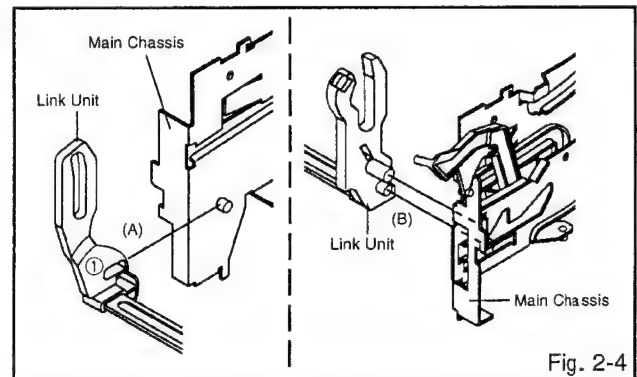
NOTE

1. In case of the Locker R installation, check if the one position of Fig.2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.



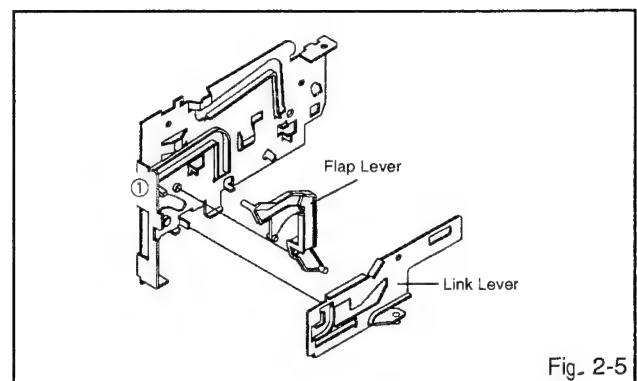
2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.



2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

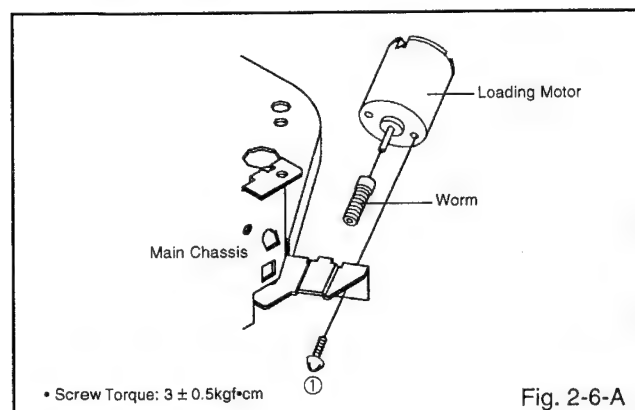
1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.



DISASSEMBLY INSTRUCTIONS

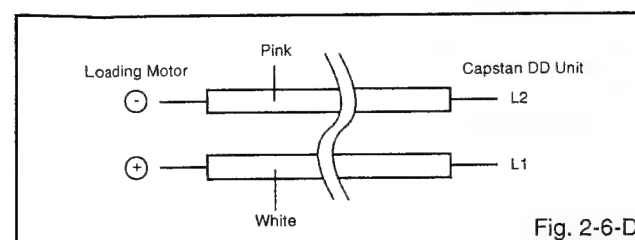
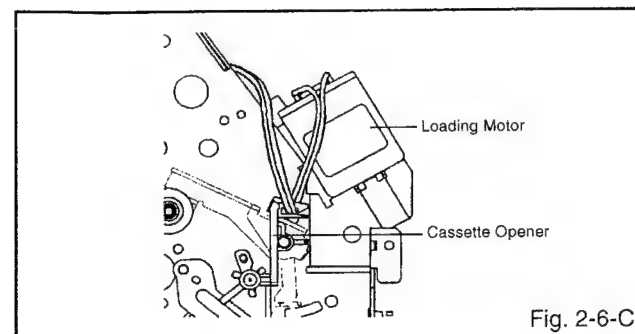
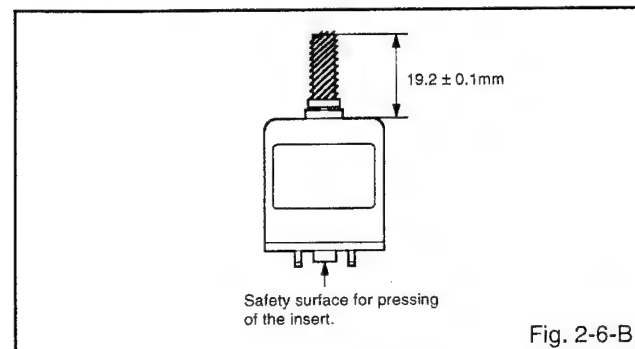
2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.



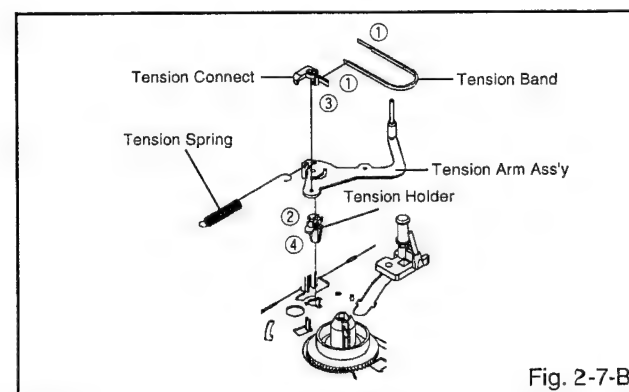
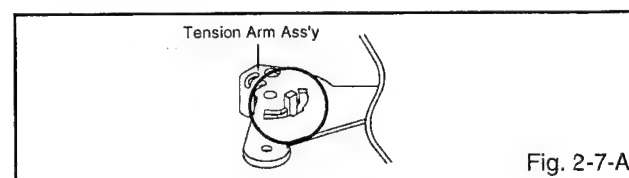
NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-6-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-6-D.



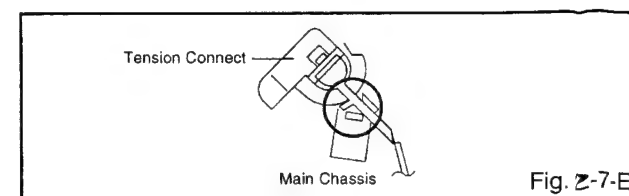
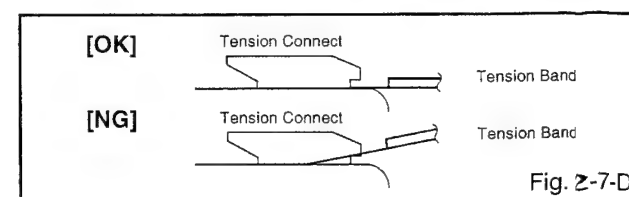
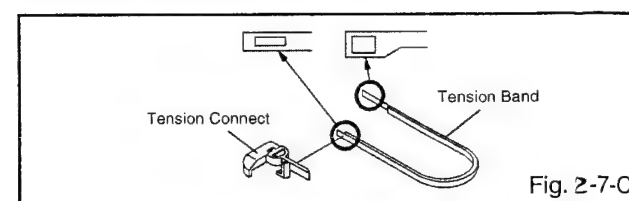
2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.



NOTE

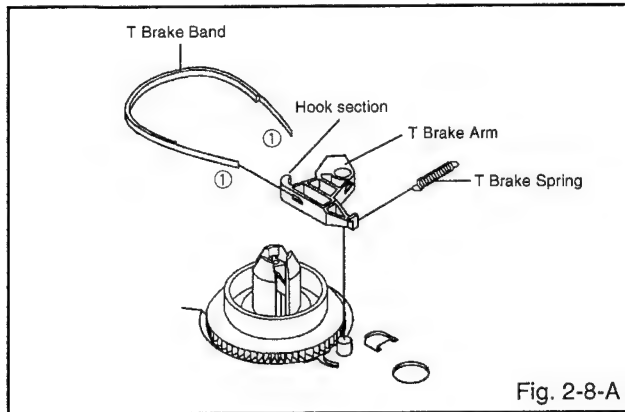
1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-7-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.



DISASSEMBLY INSTRUCTIONS

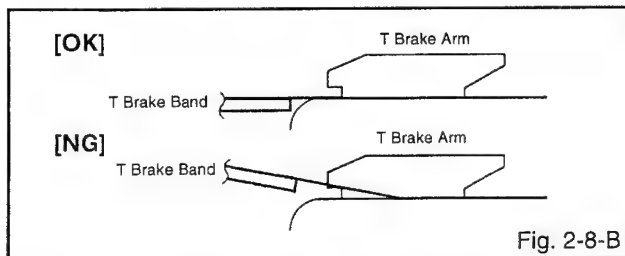
2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.



NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

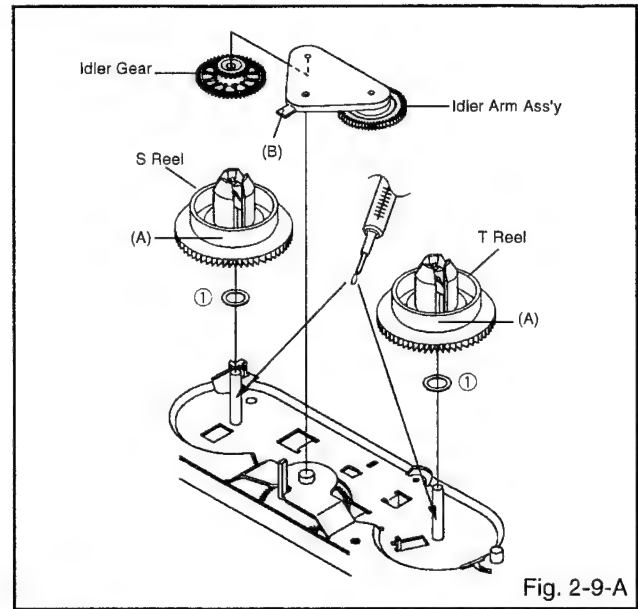


2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

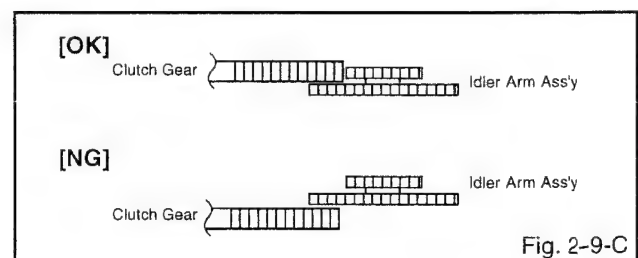
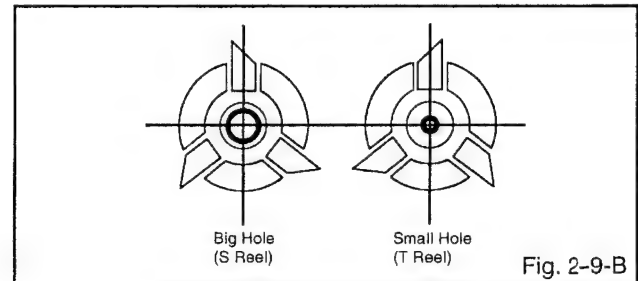
NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-9-A) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (FG-84M). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)



NOTE

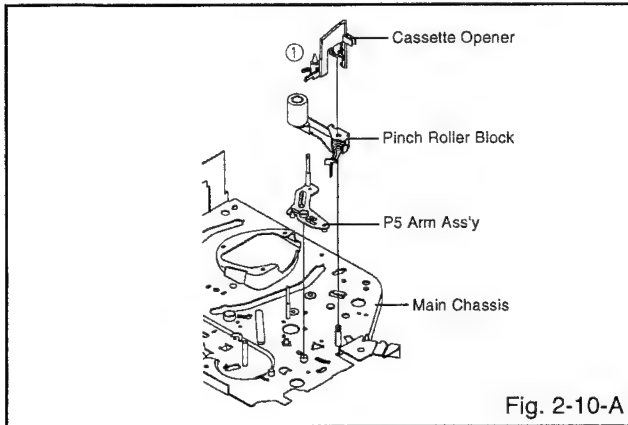
1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-9-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C. And also set it so that the section "B" of Fig. 2-9-A is placed under the Main Chassis tab.



DISASSEMBLY INSTRUCTIONS

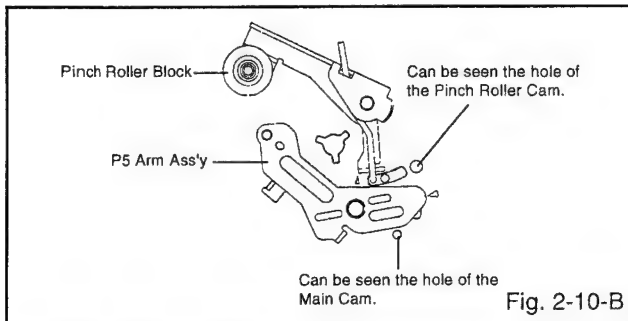
2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.



NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

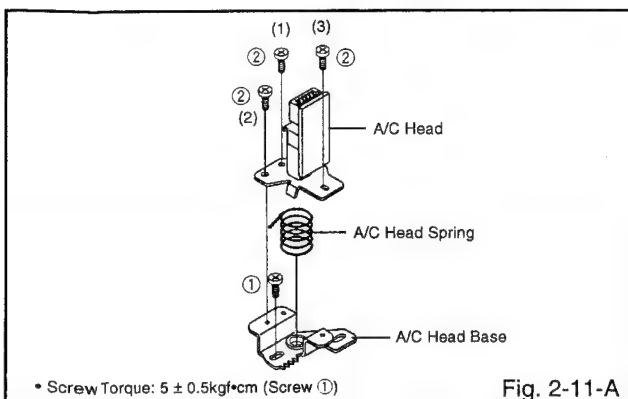


2-11: A/C HEAD (Refer to Fig. 2-11-A)

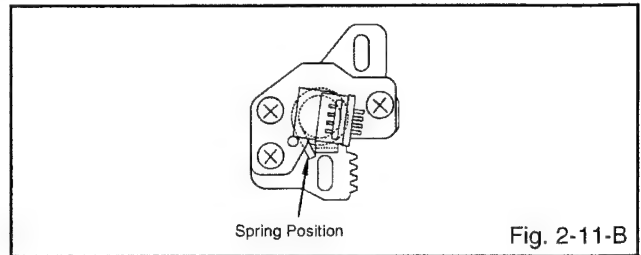
1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

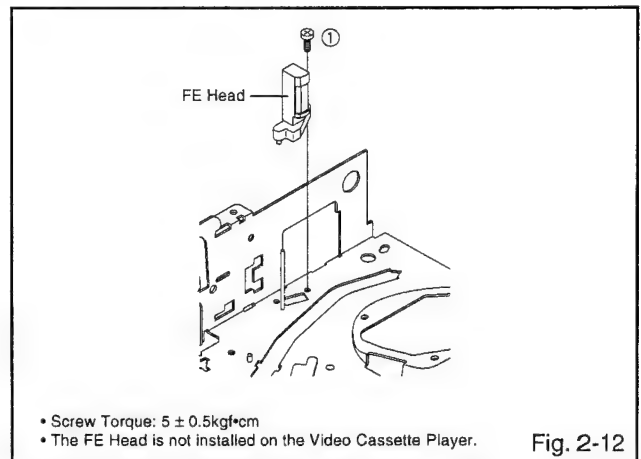


• Screw Torque: $5 \pm 0.5\text{kgf}\cdot\text{cm}$ (Screw ①)



2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.



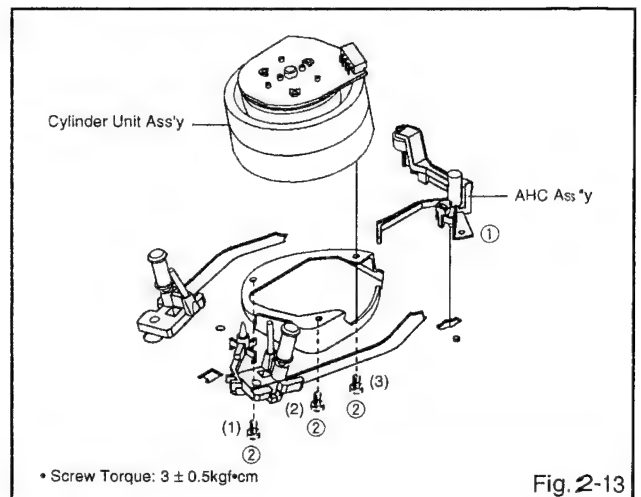
- Screw Torque: $5 \pm 0.5\text{kgf}\cdot\text{cm}$
- The FE Head is not installed on the Video Cassette Player.

2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector:
(CD2001)
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

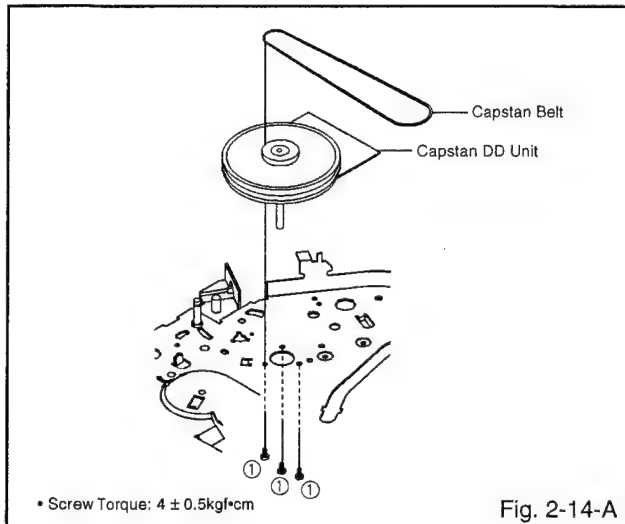


• Screw Torque: $3 \pm 0.5\text{kgf}\cdot\text{cm}$

DISASSEMBLY INSTRUCTIONS

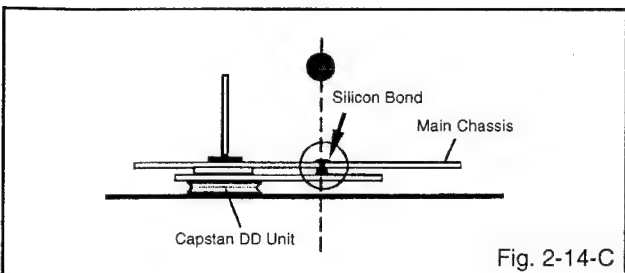
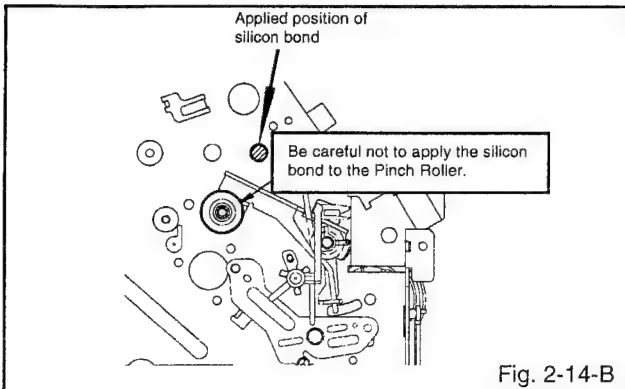
2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14-A)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



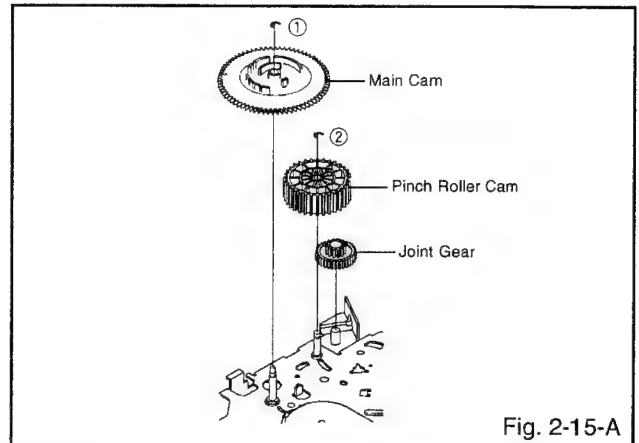
NOTE

1. In case of the Capstan DD Unit installation, apply the silicon bond (TSE3843-W) on the position Fig. 2-14-B correctly. (If no silicon bond applied, abnormal noise will be heard on the deck operation.)
(Refer to Fig. 2-14-B, C)



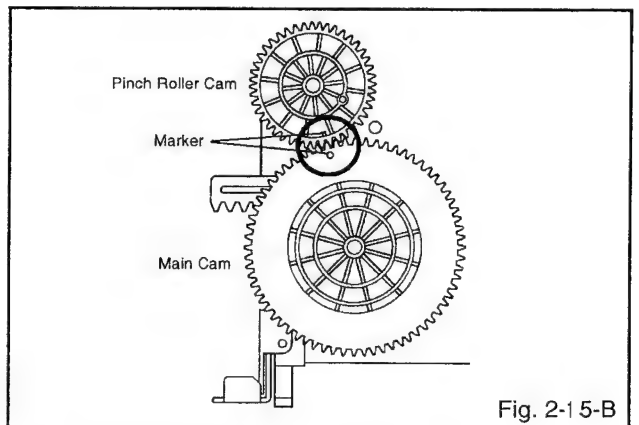
2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.



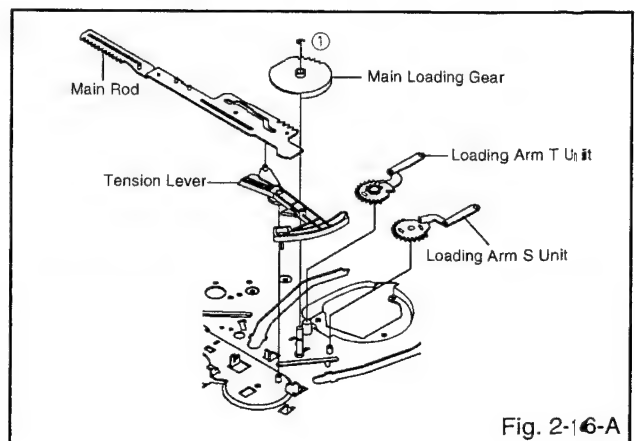
NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. (Refer to Fig. 2-15-B)



2-16: LOADING GEAR S/T UNIT (Refer to Fig. 2-16-A)

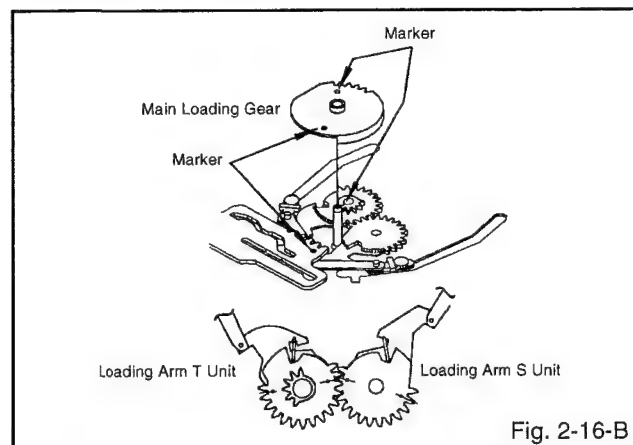
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.



DISASSEMBLY INSTRUCTIONS

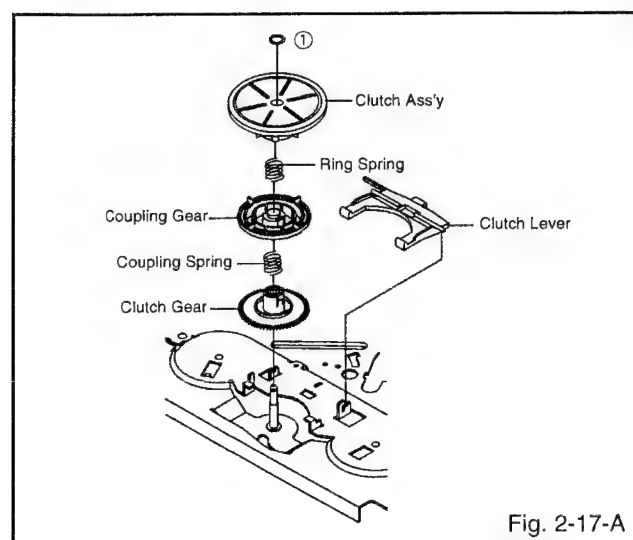
NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker.
(Refer to Fig. 2-16-B)



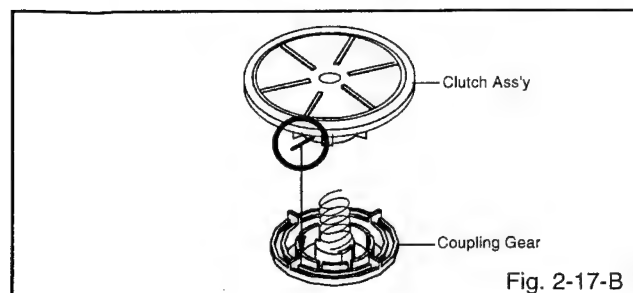
2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.



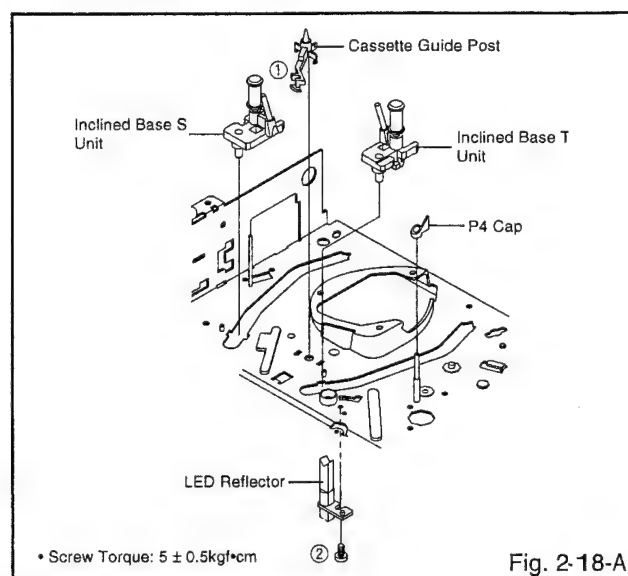
NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-17-B)



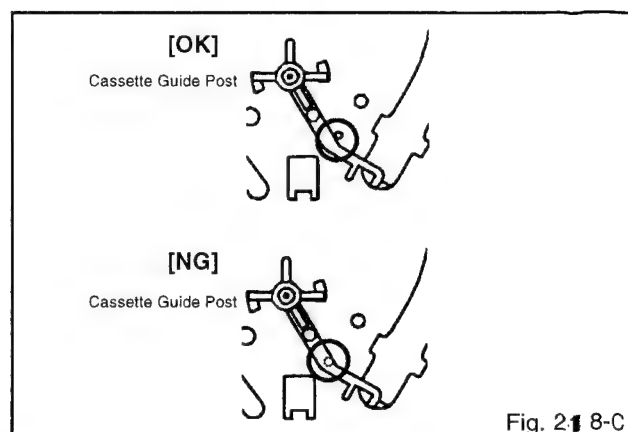
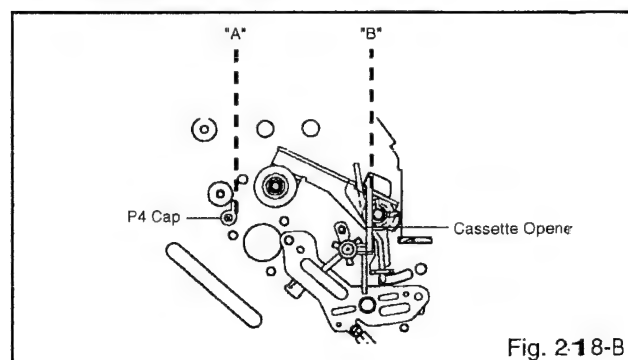
2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.



NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.



DISASSEMBLY INSTRUCTIONS

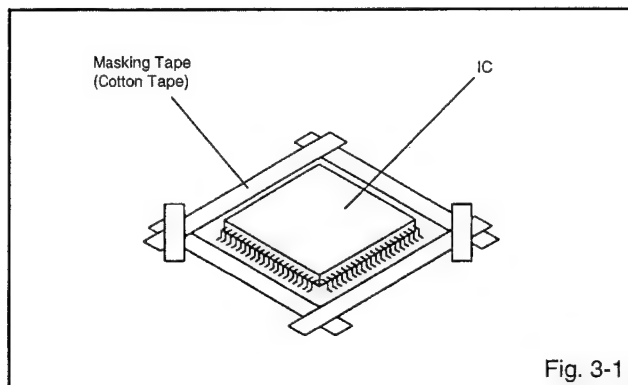
3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 3-1.)

NOTE

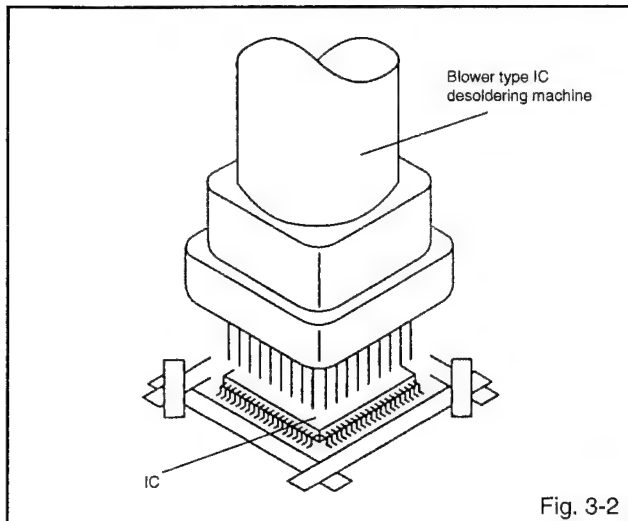
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 3-2.)

NOTE

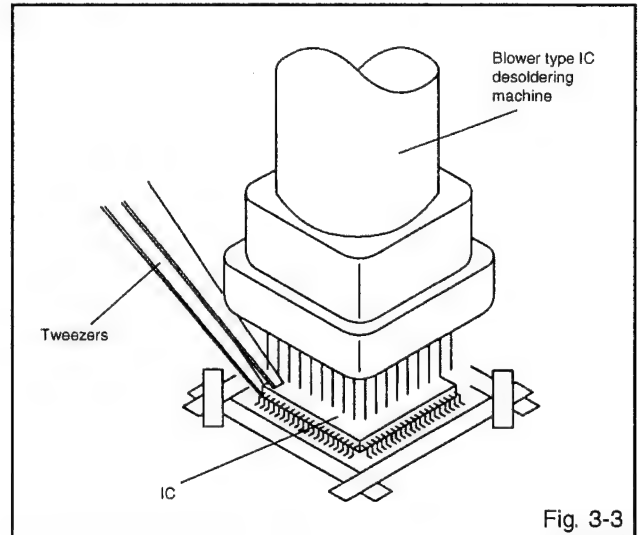
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 3-3.)

NOTE

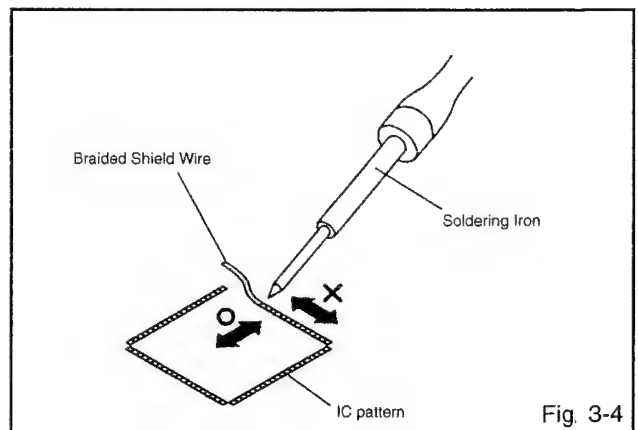
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 3-4.)

NOTE

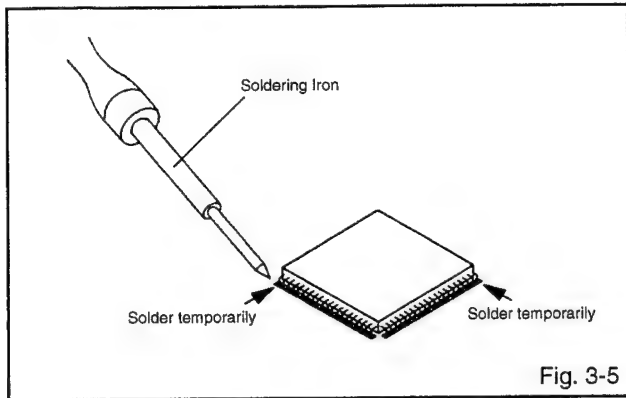
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



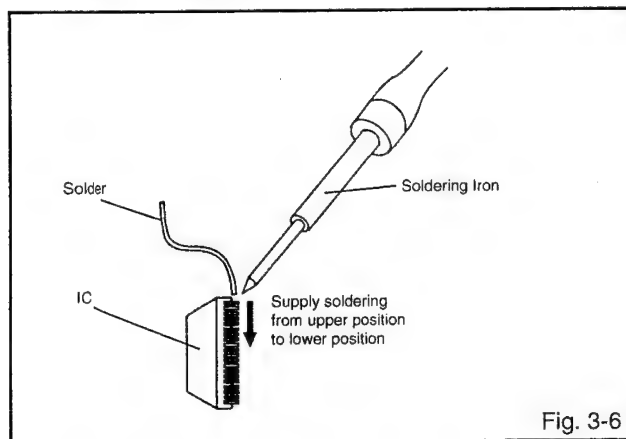
DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 3-5.)



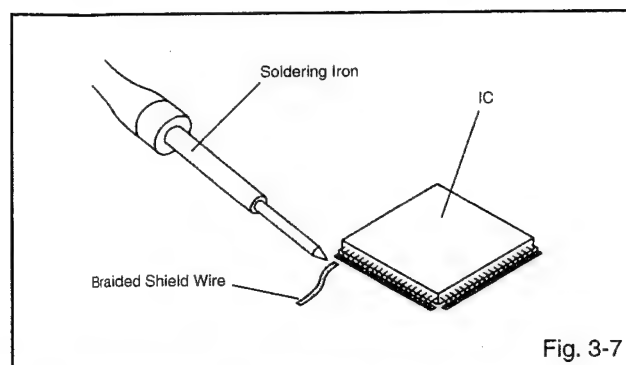
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 3-6.)



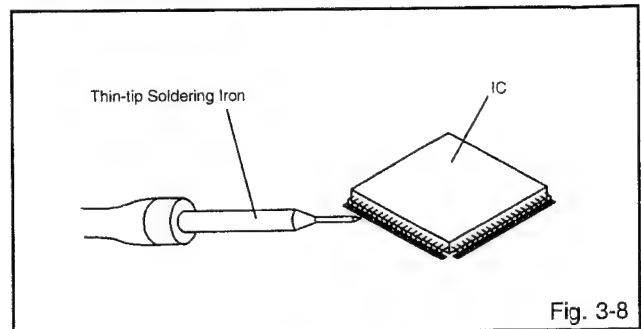
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 3-7.)

NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 3-8.)



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.

Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H.SW	: Head Switch	
	ACC	: Automatic Color Control	Hz	: Hertz	
	AE	: Audio Erase	I	IC	: Integrated Circuit
	AFC	: Automatic Frequency Control		IF	: Intermediate Frequency
	AFT	: Automatic Fine Tuning		IND	: Indicator
	AFT DET	: Automatic Fine Tuning Detect		INV	: Inverter
	AGC	: Automatic Gain Control	K	KIL	: Killer
	AMP	: Amplifier	L	L	: Left
	ANT	: Antenna		LED	: Light Emitting Diode
	A.PB	: Audio Playback		LIMIT AMP	: Limiter Amplifier
	APC	: Automatic Phase Control		LM, LDM	: Loading Motor
	ASS'Y	: Assembly		LP	: Long Play
	AT	: All Time		L.P.F	: Low Pass Filter
	AUTO	: Automatic		LUMI.	: Luminance
	A/V	: Audio/Video	M	M	: Motor
B	BGP	: Burst Gate Pulse		MAX	: Maximum
	BOT	: Beginning of Tape		MINI	: Minimum
	BPF	: Bandpass Filter		MIX	: Mixer, mixing
	BRAKE SOL	: Brake Solenoid		MM	: Monostable Multivibrator
	BUFF	: Buffer		MOD	: Modulator, Modulation
	B/W	: Black and White		MPX	: Multiplexer, Multiplex
C	C	: Capacitance, Collector		MS SW	: Mecha State Switch
	CASE	: Cassette	N	NC	: Non Connection
	CAP	: Capstan		NR	: Noise Reduction
	CARR	: Carrier	O	OSC	: Oscillator
	CH	: Channel		OPE	: Operation
	CLK	: Clock	P	PB	: Playback
	CLOCK (SY-SE)	: Clock (Syscon to Servo)		PB CTL	: Playback Control
	COMB	: Combination, Comb Filter		PB-C	: Playback-Chrominance
	CONV	: Converter		PB-Y	: Playback-Luminance
	CPM	: Capstan Motor		PCB	: Printed Circuit Board
	CTL	: Control		P. CON	: Power Control
	CYL	: Cylinder		PD	: Phase Detector
	CYL-M	: Cylinder-Motor		PG	: Pulse Generator
	CYL SENS	: Cylinder-Sensor		P-P	: Peak-to Peak
D	DATA (SY-CE)	: Data (Syscon to Servo)	R	R	: Right
	dB	: Decibel		REC	: Recording
	DC	: Direct Current		REC-C	: Recording-Chrominance
	DD Unit	: Direct Drive Motor Unit		REC-Y	: Recording-Luminance
	DEMOD	: Demodulator		REEL BRK	: Reel Brake
	DET	: Detector		REEL S	: Reel Sensor
	DEV	: Deviation		REF	: Reference
E	E	: Emitter		REG	: Regulated, Regulator
	EF	: Emitter Follower		REW	: Rewind
	EMPH	: Emphasis		REV, RVS	: Reverse
	ENC	: Encoder		RF	: Radio Frequency
	ENV	: Envelope		RMC	: Remote Control
	EOT	: End of Tape		RY	: Relay
	EQ	: Equalizer	S	S. CLK	: Serial Clock
	EXT	: External		S. COM	: Sensor Common
F	F	: Fuse		S. DATA	: Serial Data
	FBC	: Feed Back Clamp		SEG	: Segment
	FE	: Full Erase		SEL	: Select, Selector
	FF	: Fast Forward, Flipflop		SENS	: Sensor
	FG	: Frequency Generator		SER	: Search Mode
	FL SW	: Front Loading Switch		SI	: Serial Input
	FM	: Frequency Modulation		SIF	: Sound Intermediate Frequency
	FSC	: Frequency Sub Carrier		SO	: Serial Output
	FWD	: Forward		SOL	: Solenoid
G	GEN	: Generator		SP	: Standard Play
	GND	: Ground		STB	: Serial Strobe
H	H.P.F	: High Pass Filter		SW	: Switch

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than a standard time (second).

Set Key	Set Key	Standard Time (seconds)	Operations
CH UP	FF	2	PLAY/REC total hours are displayed on the FIP. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
CH UP	STOP	2	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
CH UP	PLAY	2	Initialization of the factory on VCR. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, and PLAY/REC total hours.
VCR EJECT	REC	2	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. NOTE: It can also be done by making the short circuit between the test point of SERVICE and the GND.

Set Key	Remocon Key	Standard Time (seconds)	Operations
REC	4	2	Initialization of the factory on DVD. NOTE: Do not use this for the normal servicing. The function will only work without the setting of DVD disc at DVD mode. While pressing the Remocon Key for more than the Standard Time, press the Set Key simultaneously.
STOP	2	3	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL". NOTE: The function will only work without the setting of DVD disc at DVD mode.

Method	Operations
Make the short circuit between the test point of SERVICE and the GND.	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.

Parts replacing time does not mean the life span for individual parts.

Also, long term storage or misuse may cause transformation and aging of rubber parts.

The following list means standard hours, so the checking hours depends on the conditions.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	Replace when rolling becomes abnormal.
Tape Running Guide Post	■	■	■	■	■	
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean

● : Check it and if necessary, replace it.

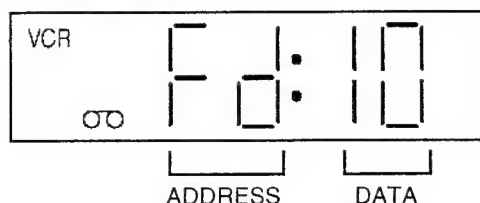
CONFIRMATION OF HOURS USED

PLAY/REC total hours can be checked on the FIP.

Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds.
3. Adjust the ADDRESS to "FD" by TRACKING + or - button and read the DATA.
(This DATA becomes the thousands digit and hundreds digit value of the following formula.)
4. Adjust the ADDRESS to "FE" by TRACKING + or - button and read the DATA.
(This DATA becomes the tens digit and ones digit value of the following formula.)
5. After the confirmation of using hours, turn off the power.



$(16 \times 16 \times 16 \times \text{thousands digit value}) + (16 \times 16 \times \text{hundreds digit value}) + (16 \times \text{tens digit value}) + (\text{ones digit value})$

PREVENTIVE CHECKS AND SERVICE INTERVALS

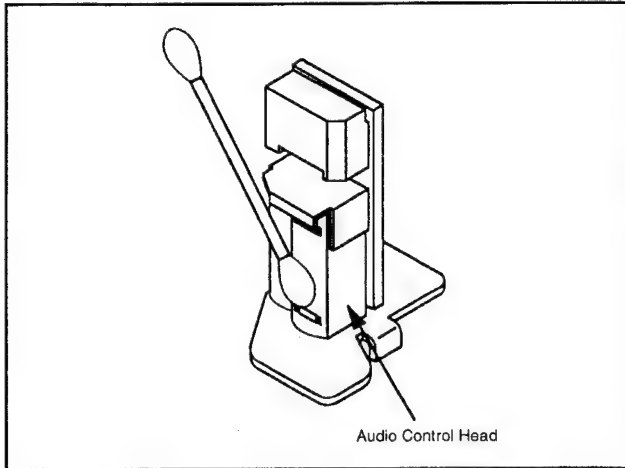
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. (Refer to the figure below.)



2. TAPE RUNNING SYSTEM

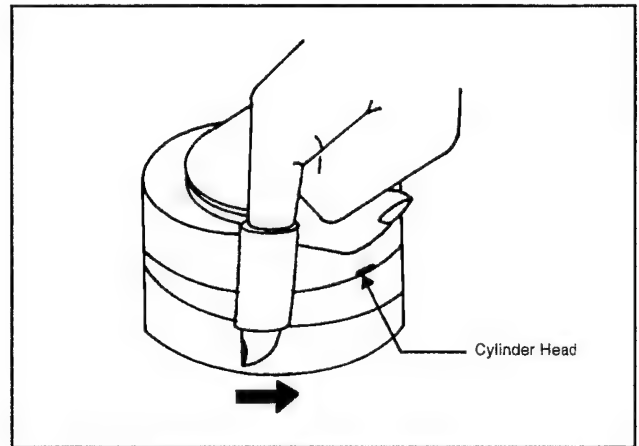
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). (Refer to the figure below.)

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: No need setting for after INI FD.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
B0	---	---	---	---	---	---	---	---	---	1D	42	00	44	00	02	38
C0	44	50	04	89	9F	82	18	07	00	B2	B2	9F	8E	8E	00	00
D0	00	08	42	30	60	56	65	5F	00	DB	20	F9	5F	00	00	00
E0	00	00	00	00	00	00	00	00	00	00	00	5F	00	DF	01	F9
F0	5F	00	00	00	21	01	80	3D	68	08	89	3A	90	---	---	---

Table 1

1. Turn on the POWER.
2. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.
ADDRESS and DATA will appear on FIP as Fig 1.

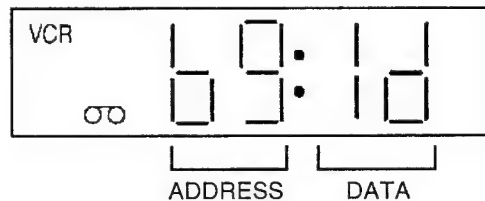



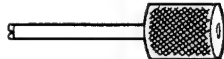
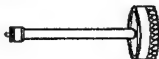
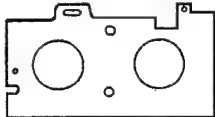

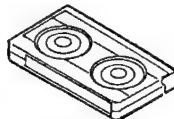

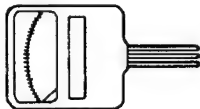


Fig. 1

3. ADDRESS is now selected and should "blink". Using the TRACKING + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using TRACKING + or - button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.
The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP ₁ S-LI6 ³) JG001F (VP ₁ S-CO1 ³) JG001R (VP ₁ S-LI6 ³ H) JG001U (VP ₁ S-X6 ³) 	(For 2 head 2 speed model) VHS Alignment Tape JG001C (VP ₂ S-LI6 ³) JG001D (VP ₂ S-CO1 ³) JG001V (VP ₂ S-X6 ³) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001E	APJG001E00	VHS Alignment Tape	Monoscope, 6KHz (For 2 head 1 speed model, 4 head model)
JG001F	APJG001F00	VHS Alignment Tape	Color Bar, 1KHz (For 2 head 1 speed model, 4 head model)
JG001R	APJG001R00	VHS Alignment Tape	Hi-Fi Audio (For Hi-Fi model)
JG001U	APJG001U00	VHS Alignment Tape	X Value Adjustment (For 2 head 1 speed model, 4 head model)
JG001C	APJG001C00	VHS Alignment Tape	Monoscope, 6KHz (For 2 head 2 speed model)
JG001D	APJG001D00	VHS Alignment Tape	Color Bar, 1KHz (For 2 head 2 speed model)
JG001V	APJG001V00	VHS Alignment Tape	X Value Adjustment (For 2 head 2 speed model)
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

- Press both VCR EJECT button on the set and the REC button on the set for more than 2 seconds.
(The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
- In case of using a cassette tape, press the EJECT button to insert or eject a cassette tape.
Turn on the power and re-check the cable before checking the trouble points.

NOTE: It can also be done by making the short circuit between the TP3001 and the Ground with the cable JG154.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (JG022) and reel disk height adjustment jig (JG024A) on the mechanism framework, taking care not to scratch the drum, as shown in Fig. 1-1-A.
- While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (JG024A) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to $10(+2, -0)$ mm.
- Adjust the other reel in the same way.

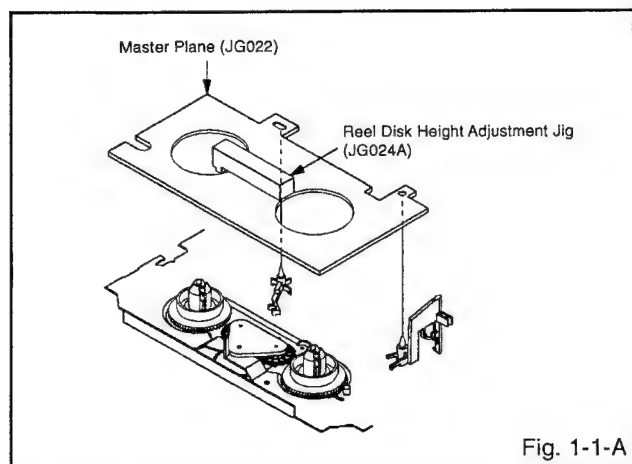


Fig. 1-1-A

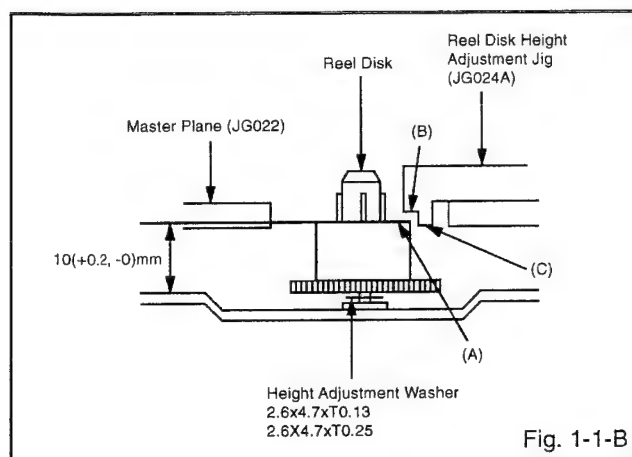


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode.
- Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
- While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

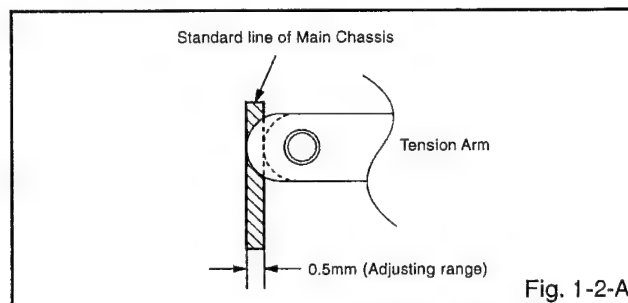


Fig. 1-2-A

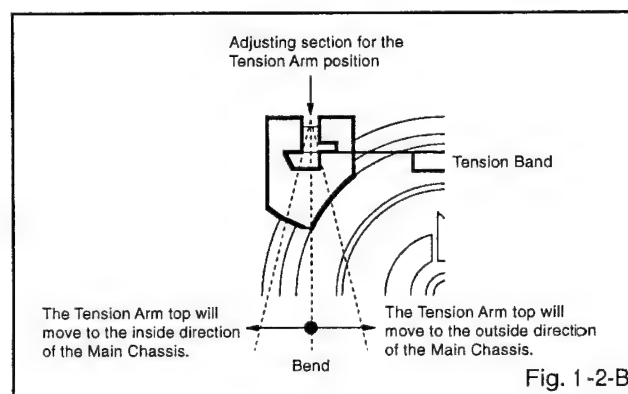


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer as shown in Fig. 1-3. Confirm that the meter indicates 20 ± 2 gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (JG100A)

- After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (JG100A) and set to the PLAY mode.
- Confirm that the right meter of the torque tape indicates $50 \sim 90$ gf•cm during playback in SP mode.
- Confirm that the left meter of the torque tape indicates $25 \sim 40$ gf•cm during playback in SP mode.

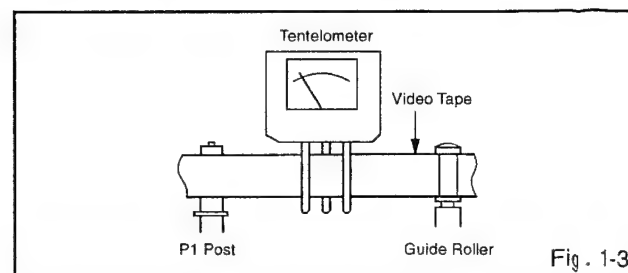


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4-B)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Turn the Torque Gauge (JG002F) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (JG002E) and Adapter (JG002B) on the T reel. Turn the Torque Gauge (JG002E) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

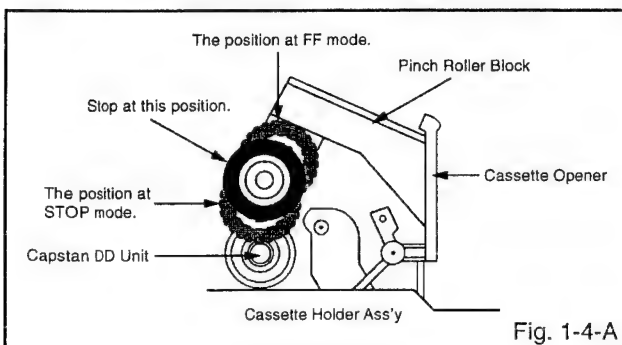


Fig. 1-4-A

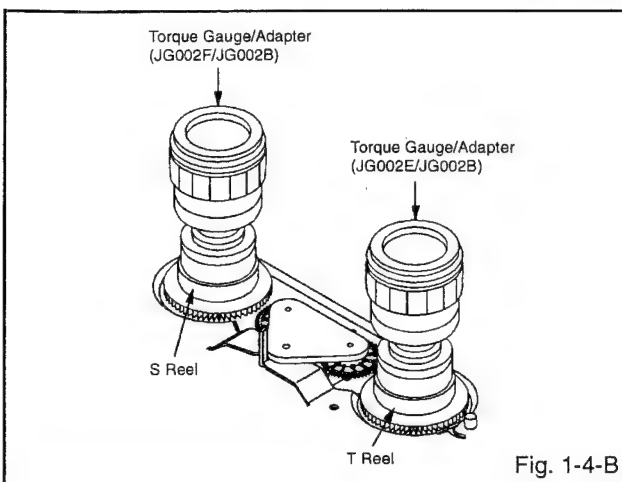


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP103 (Envelope) and CH-2 to TP102 (SW Pulse).
3. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
4. When observing the envelope, adjust the Adjusting Driver (JG005) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
5. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
6. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

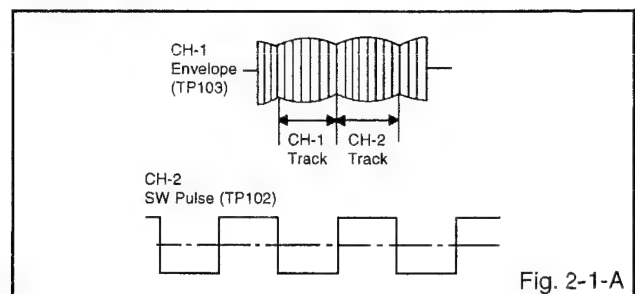


Fig. 2-1-A

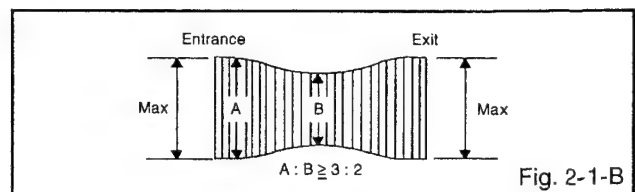


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to **SERVICING FIXTURE AND TOOLS**)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

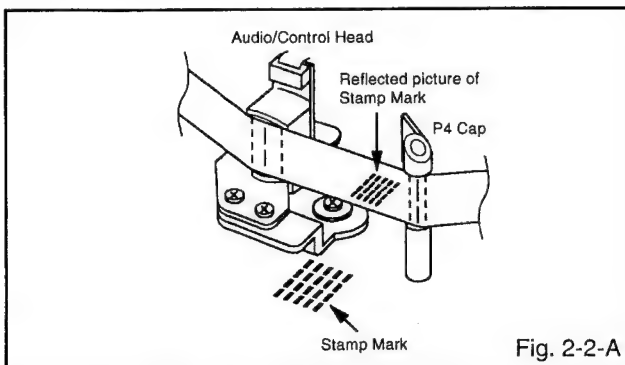


Fig. 2-2-A

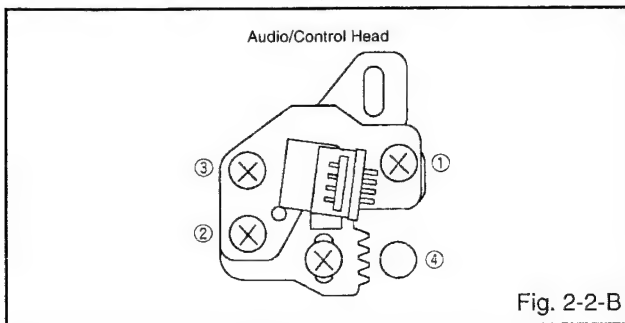


Fig. 2-2-B

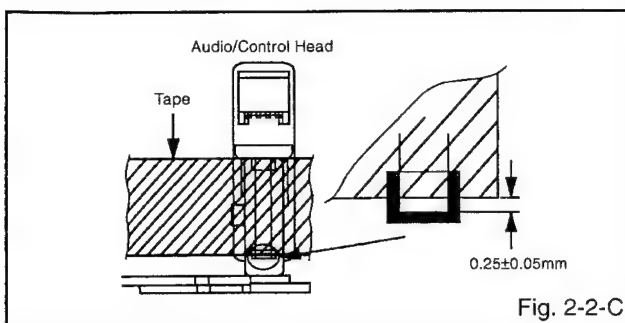


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. (Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post. (Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head. (Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to TP102, CH-2 to TP103 and CH-3 to pin 19 of J8004.
6. Playback the VHS Alignment Tape (JG001U or JG001V). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. Set the X Value adjustment driver (JG153) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

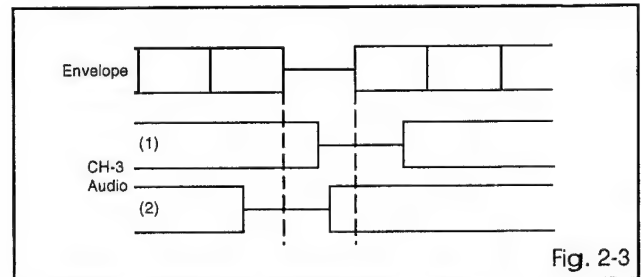


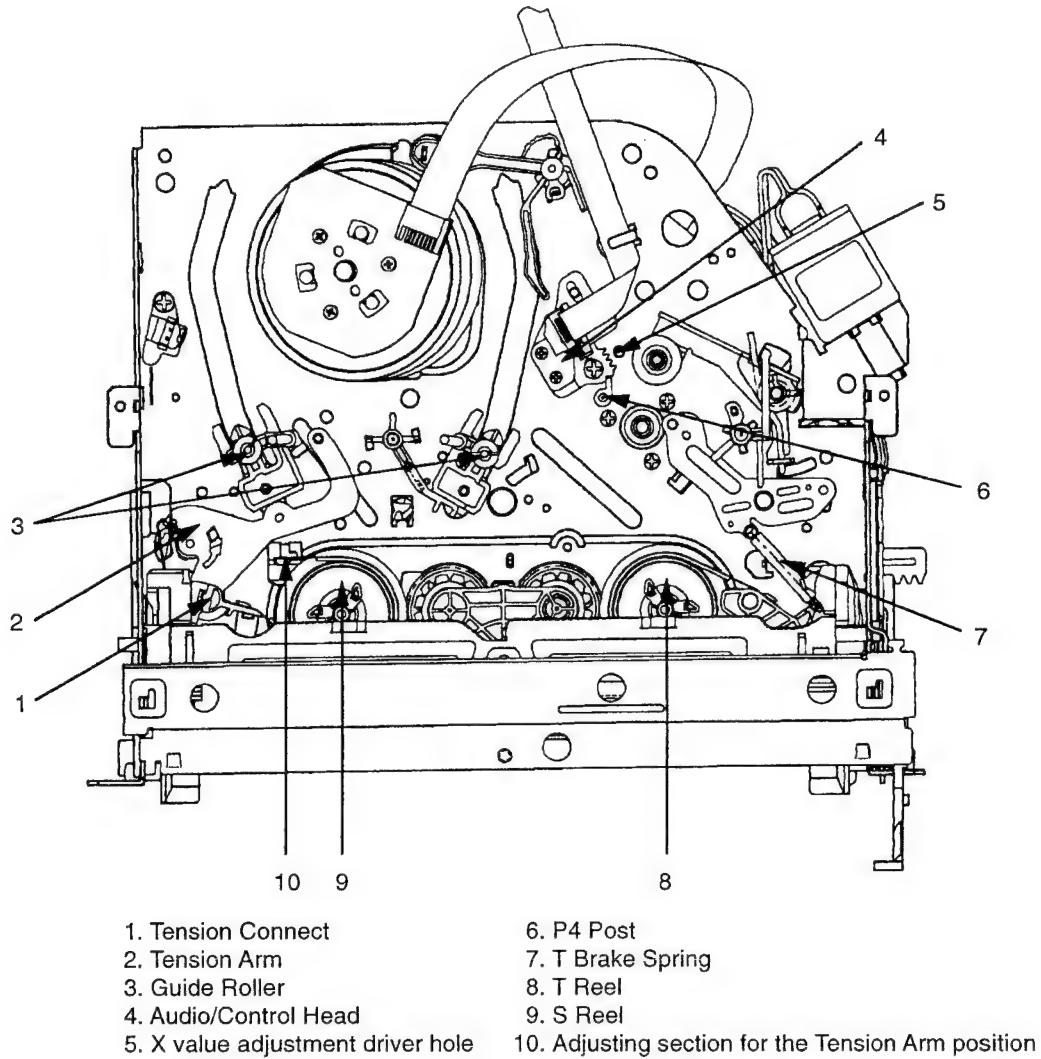
Fig. 2-3

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to TP103 and CH-2 to the pin 19 of J8004.
2. Playback the VHS Alignment Tape (JG001R). (Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
4. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. If the difference are more than 3 steps, set the X Value adjustment driver (JG153) to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



ELECTRICAL ADJUSTMENTS

Read and perform this adjustment when repairing the circuits or replacing electrical parts or PCB assemblies.

1. BASIC ADJUSTMENT

CAUTION

When you exchange IC and Transistor for a heat sink, apply the silicon grease (**YG6260M**) on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

1-1: PG SHIFTER

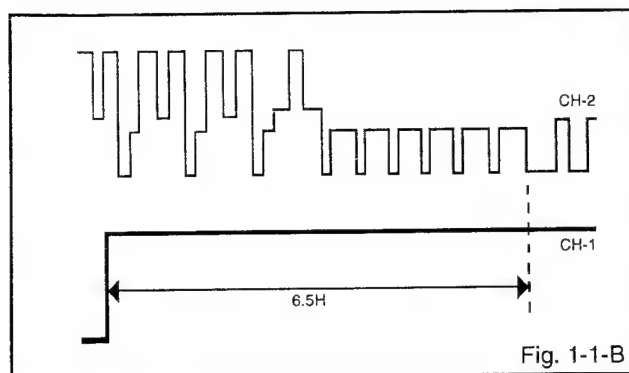
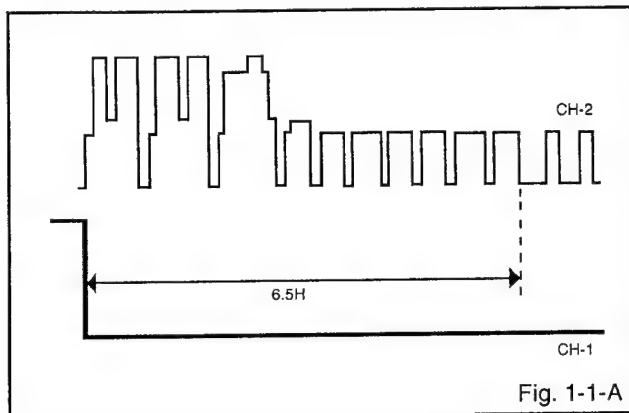
CONDITIONS

MODE-PLAYBACK

Input Signal-Alignment Tape (**JG001E**)

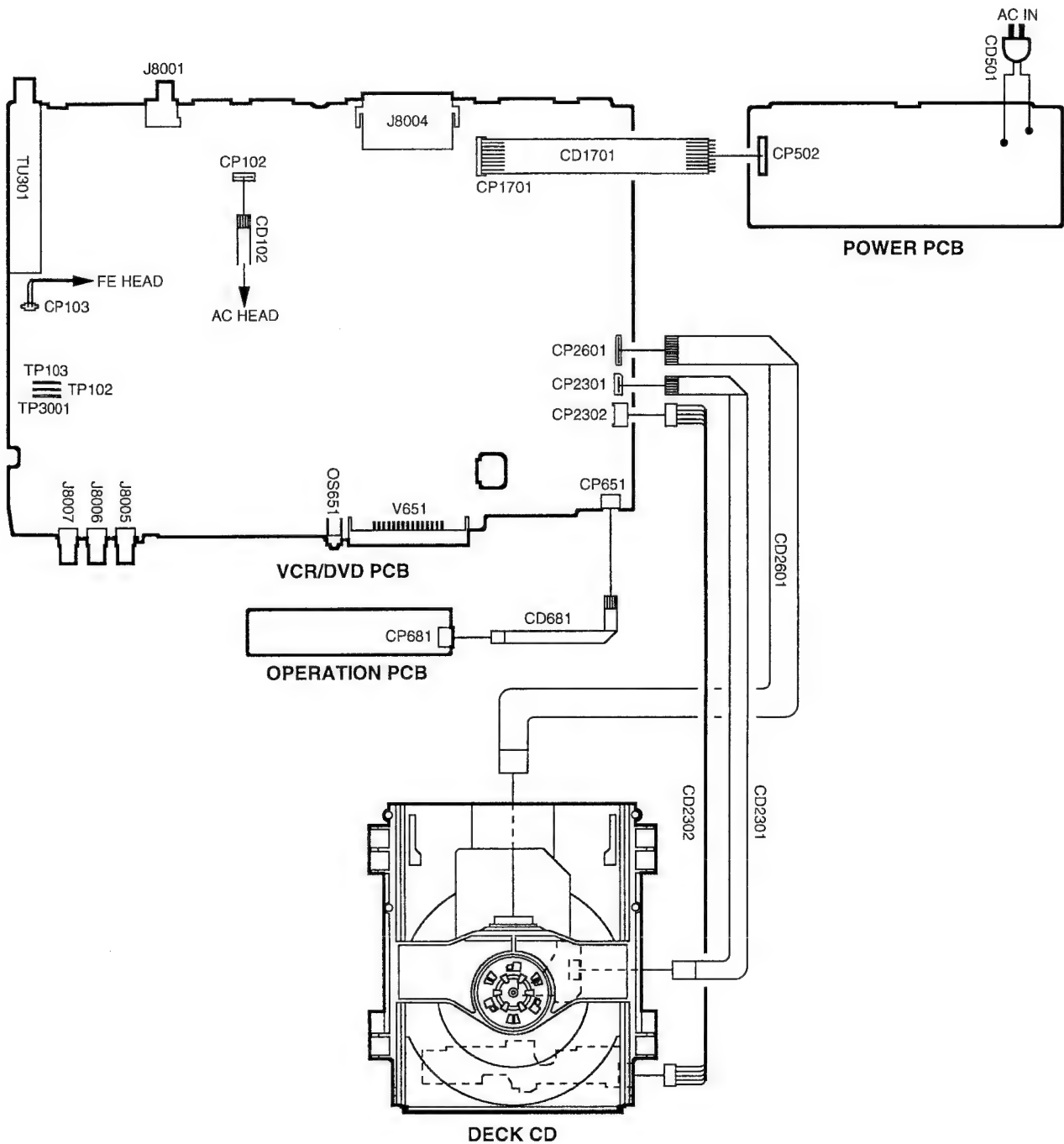
INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to TP102 and CH-2 to pin 19 of J8004.
2. Playback the alignment tape. (**JG001E**)
3. Press both CH UP button on the set and the STOP button on the set for more than 2 seconds.



ELECTRICAL ADJUSTMENTS

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



Zentralwerkstatt und
Ersatzteildepot
für ORION-Produkte


Schwalbe
Service & Versand GmbH

Postfach 10 10 26
63264 Dreieich
Max-Planck-Str. 20
63303 Dreieich

Ersatzteil-Bestellung

Tel.: (06103) 39 99-95 Fax.: (06103) 39 99-79

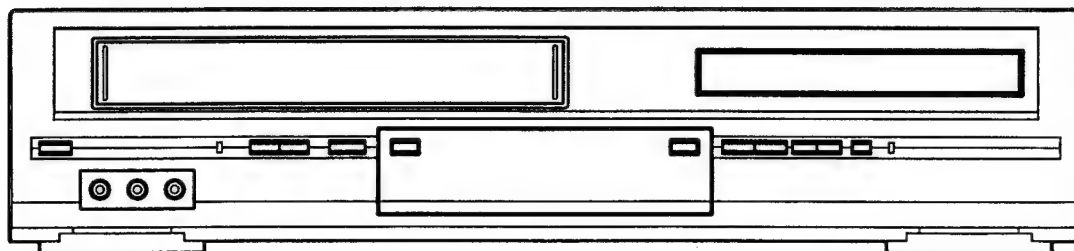
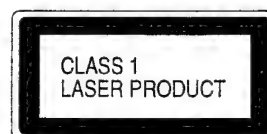
SERVICE MANUAL

Nachdruck bzw. Kopieren dieser Unterlagen ist grundsätzlich verboten!

Teil 2 ORION

DVD/VR-2961 / 2963 SI

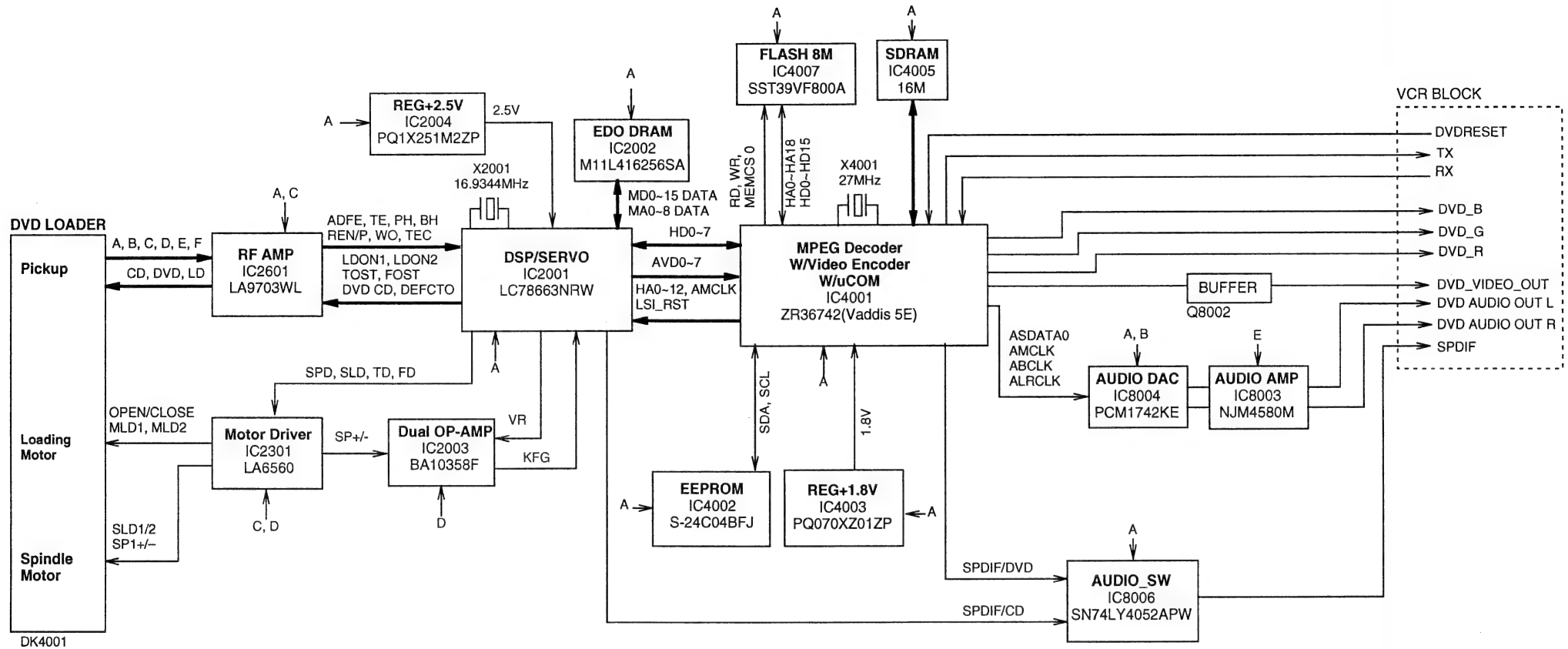
DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



ORIGINAL CHASSIS CODE A

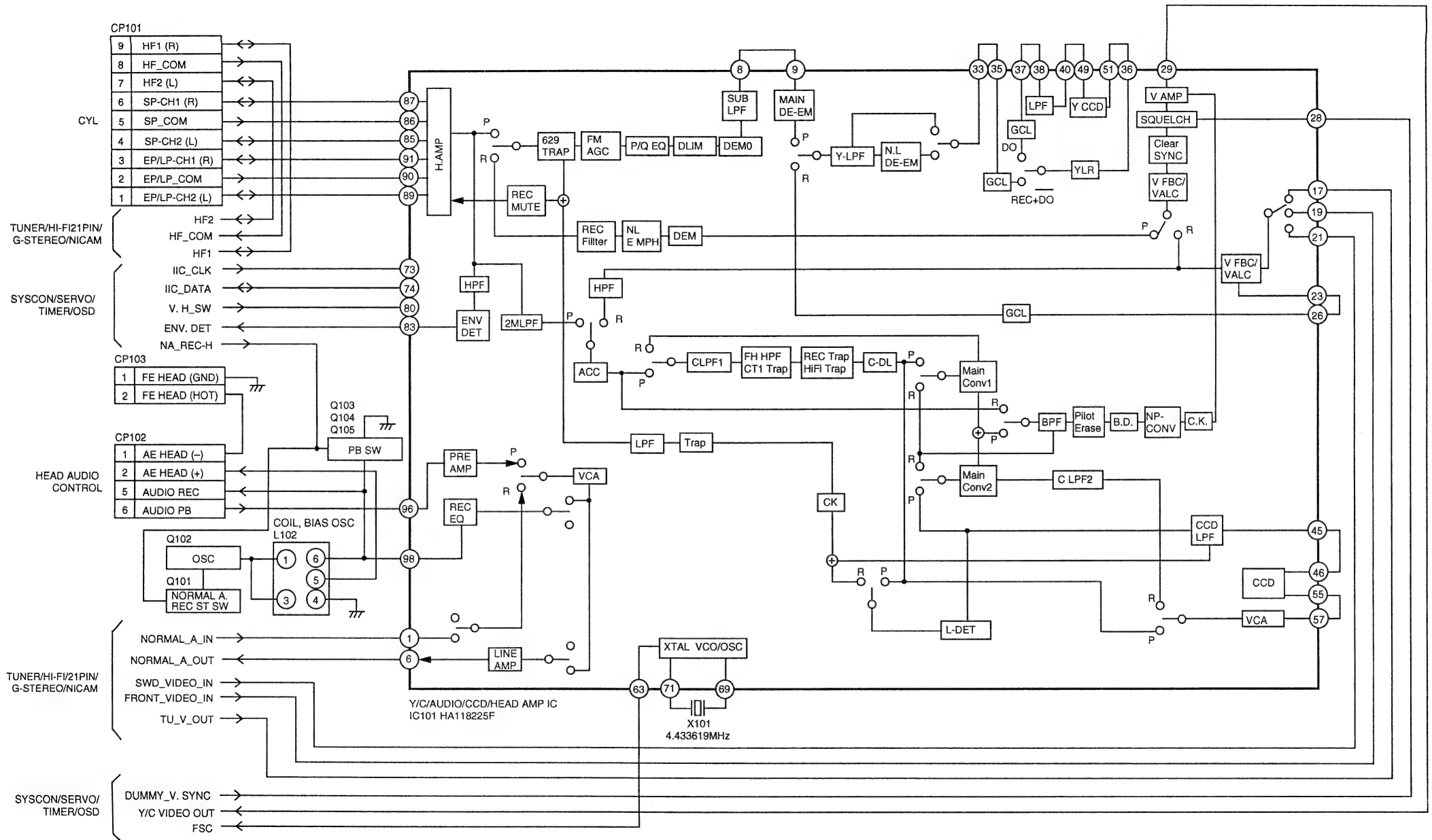
Best. Nr. SM2963-2

DVD BLOCK DIAGRAM

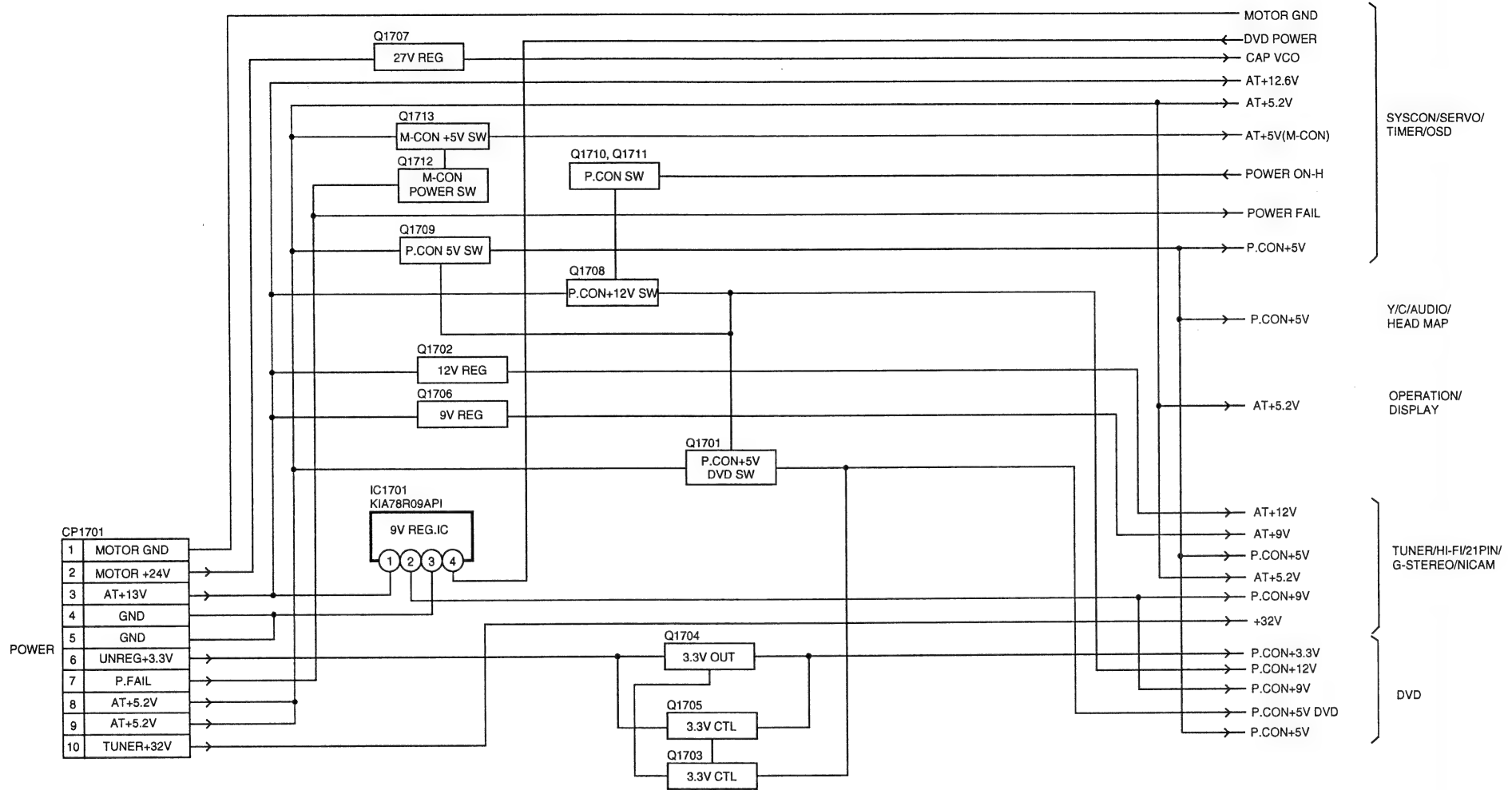


A P.CON+3.3V
 B P.CON+5V
 C P.CON+A5V
 D P.CON+9V_DVD
 E P.CON+12V

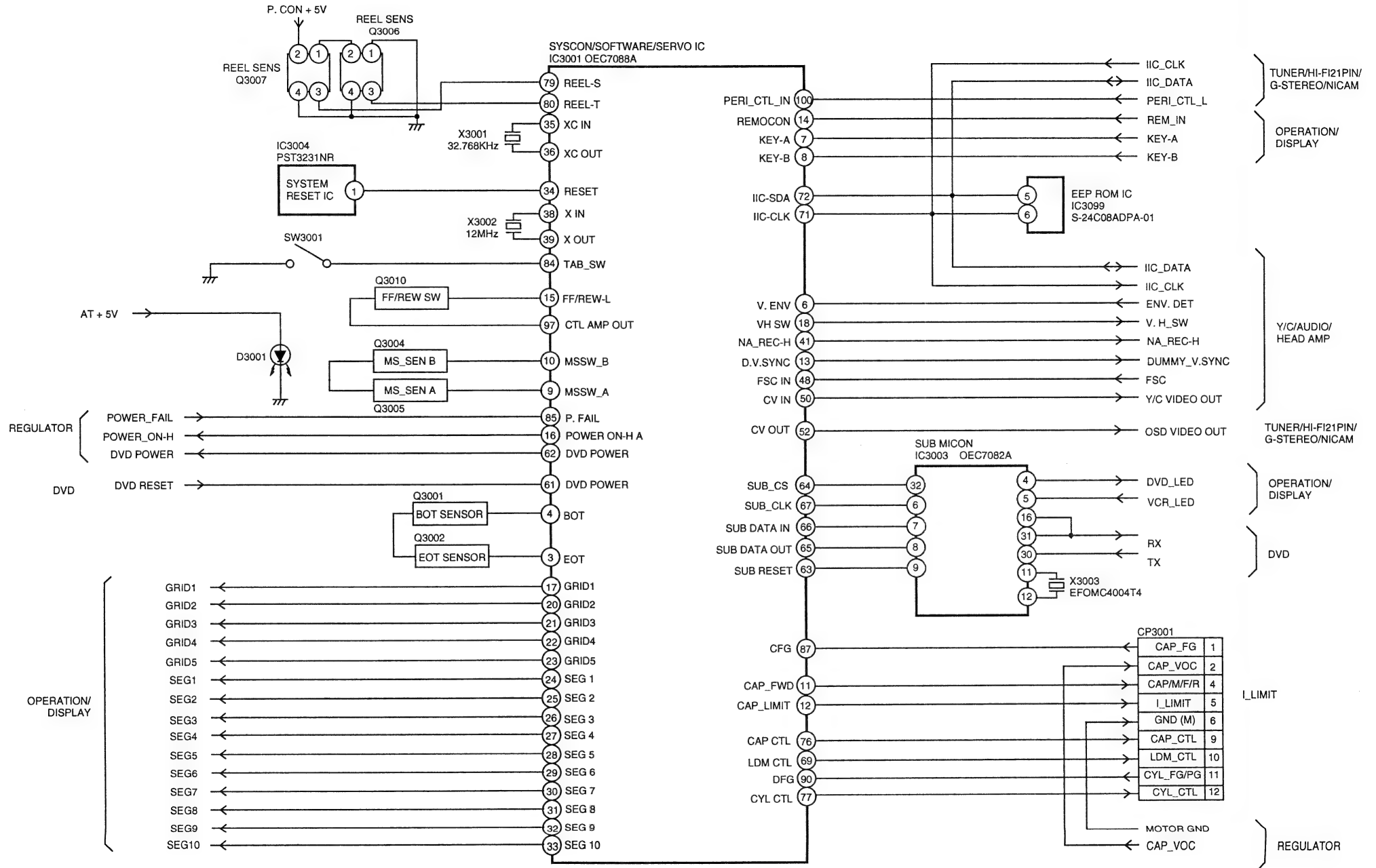
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



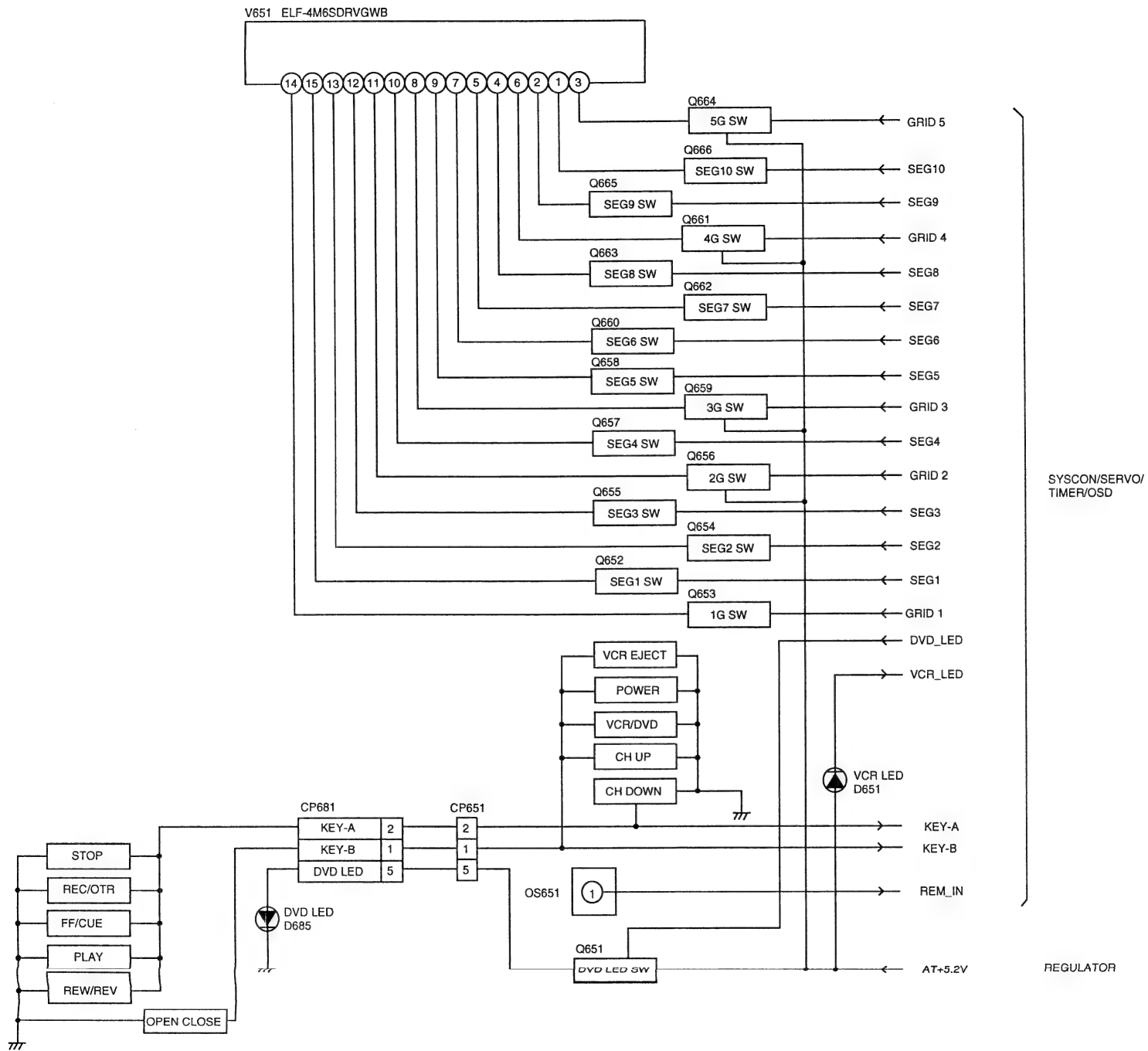
REGULATOR BLOCK DIAGRAM



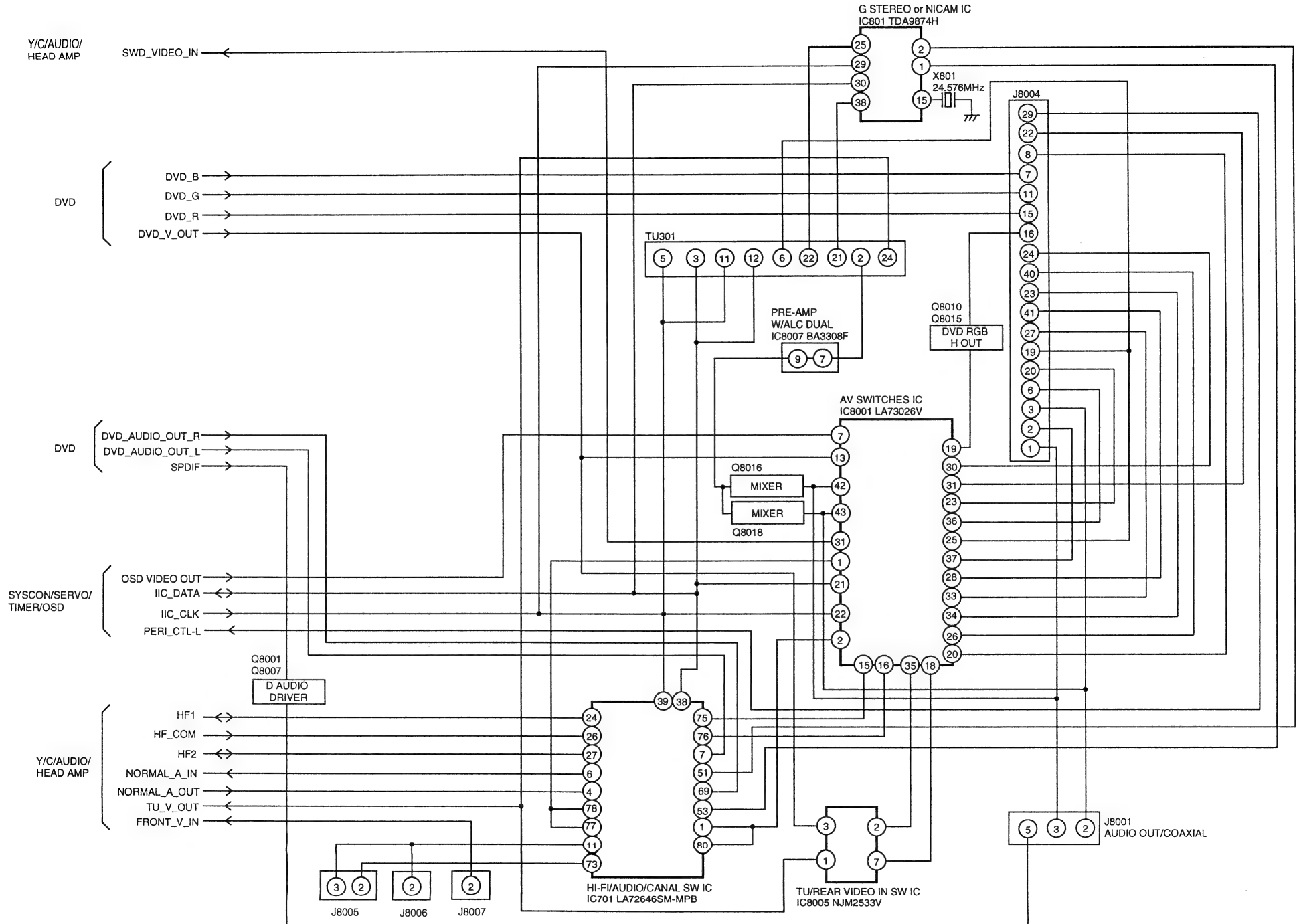
SYSTEM CONTROL/SERVO/TIMER/OSD BLOCK DIAGRAM



OPERATION/DISPLAY BLOCK DIAGRAM



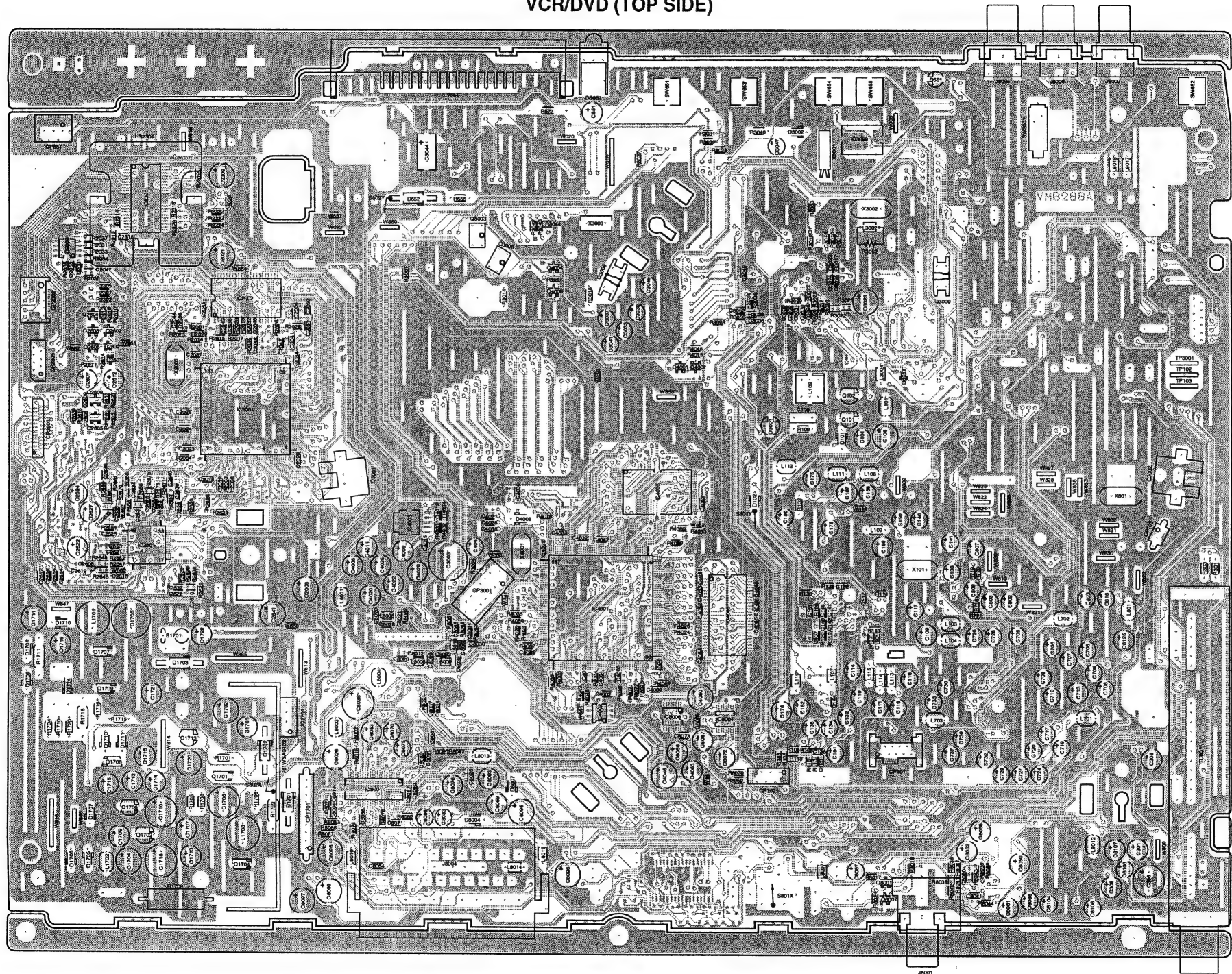
TUNER/Hi-Fi/21PIN/G-STEREO/NICAM BLOCK DIAGRAM



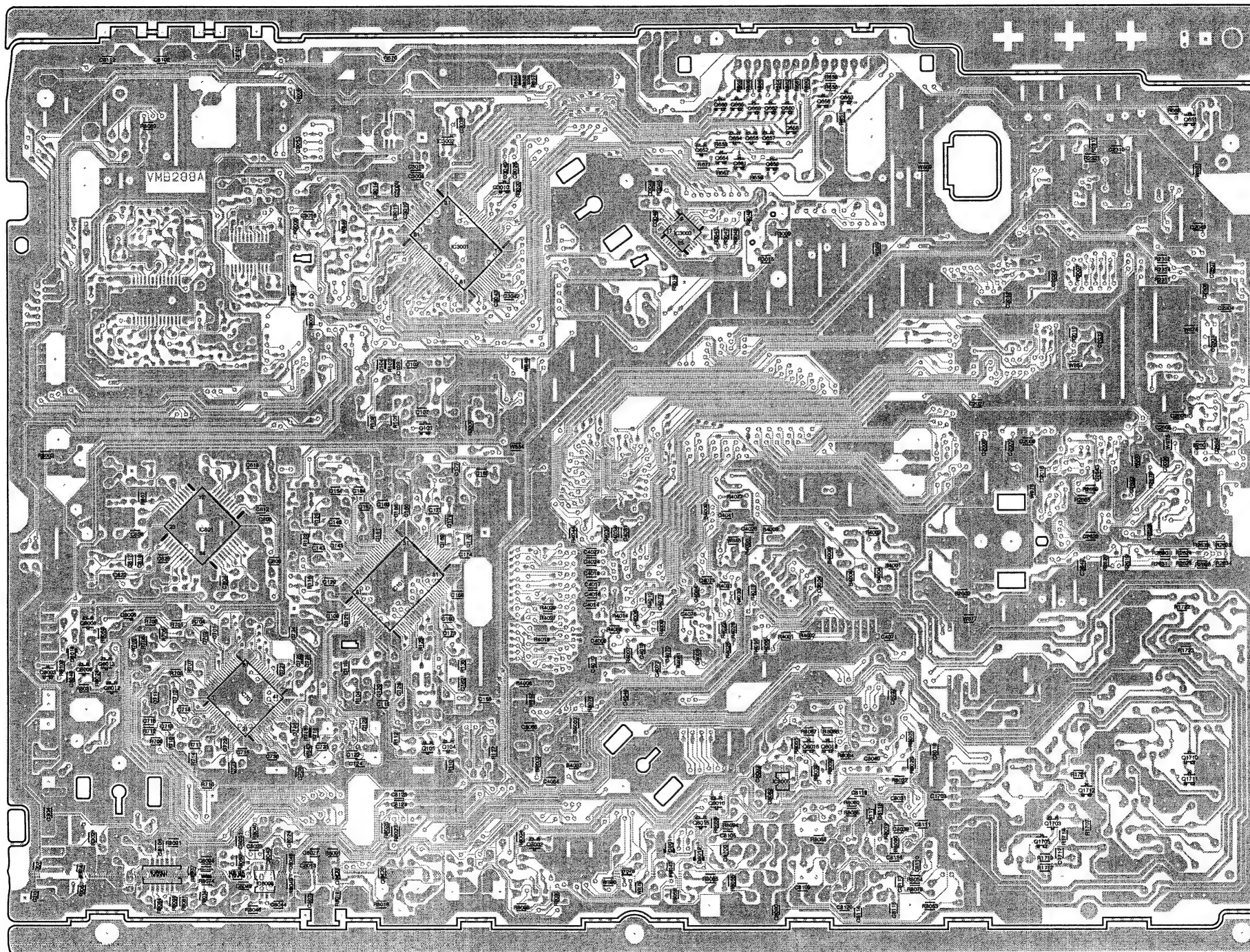
2000



PRINTED CIRCUIT BOARDS
VCR/DVD (TOP SIDE)

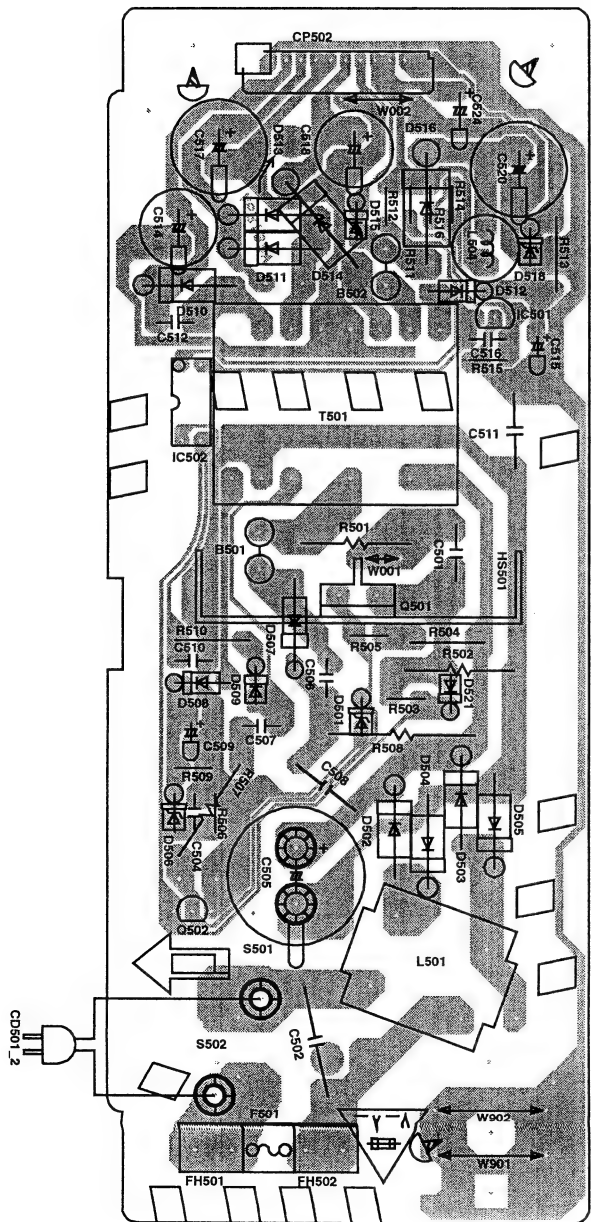


PRINTED CIRCUIT BOARDS
VCR/DVD (BOTTOM SIDE)

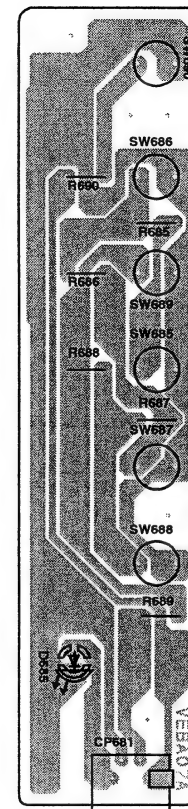


PRINTED CIRCUIT BOARDS

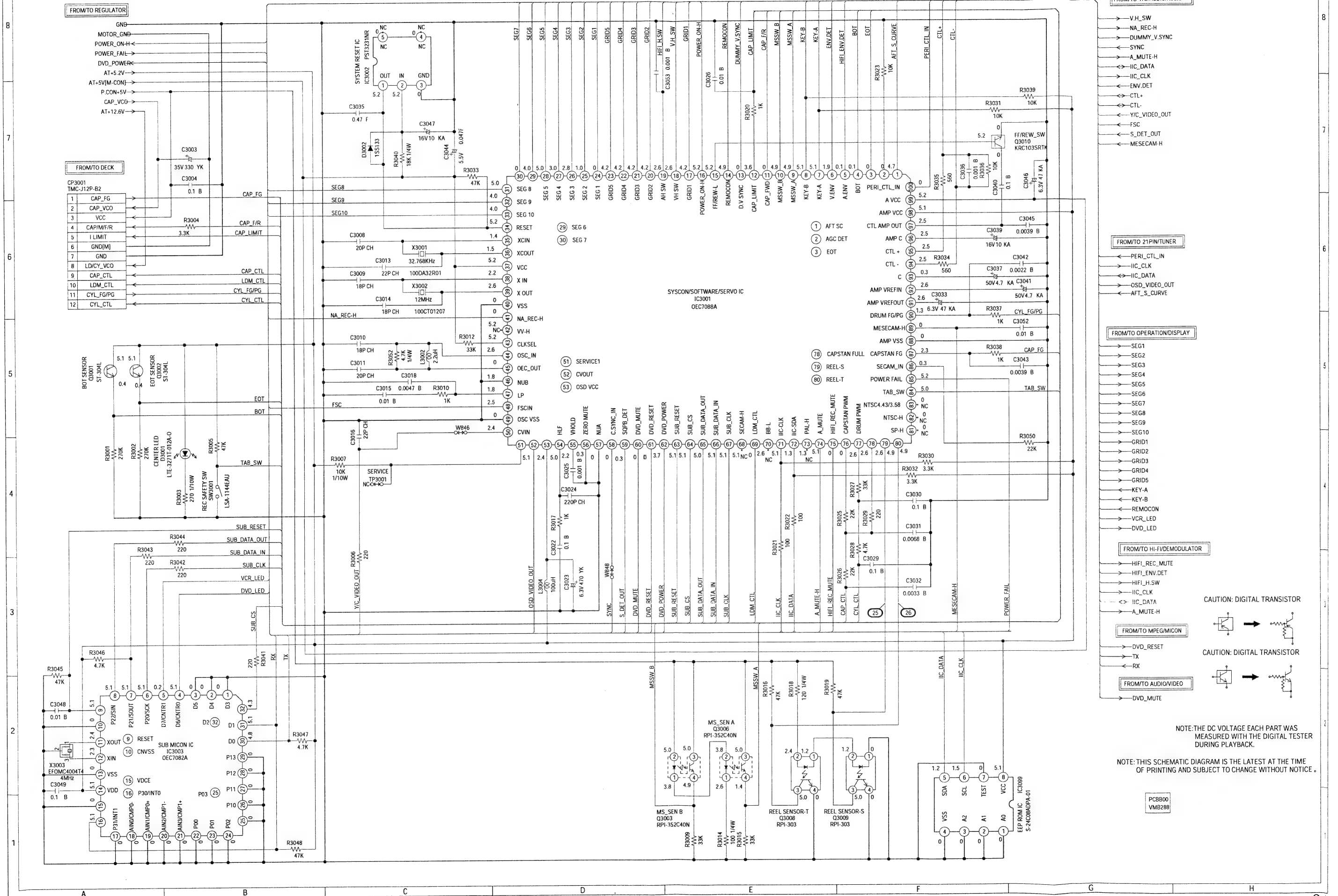
**POWER
SOLDER SIDE**



OPERATION SOLDER SIDE



SYSCON/SERVO/TIMER/VPS SCHEMATIC DIAGRAM (VCR/DVD PCB)



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(VCR/DVD PCB)

FROM/TO
SYS/CON/SERVO/TIMER/VPS

V.H.S.W.
NA.REC.H
DUMMY_V.SYNG
SYNG
A.MUTE.H
IIC_DATA
IIC_CLK
ENV.DET
CTL
CTL
Y/C_VIDEO_OUT
FSC
S_DET_OUT
MESECAM.H

FROM/TO 21PIN/TUNER

SWD_VIDEO
FRONT_VIDEO_IN
TU_VIDEO_OUT

FROM/TO REGULATOR

P.CON+5V
AT+5.2V
GNB

FROM/TO HI-FI/DEMODULATOR

NORMAL_AUDIO_IN
NORMAL_AUDIO_OUT
HF1
HF2
HF_COM

FROM/TO CYL

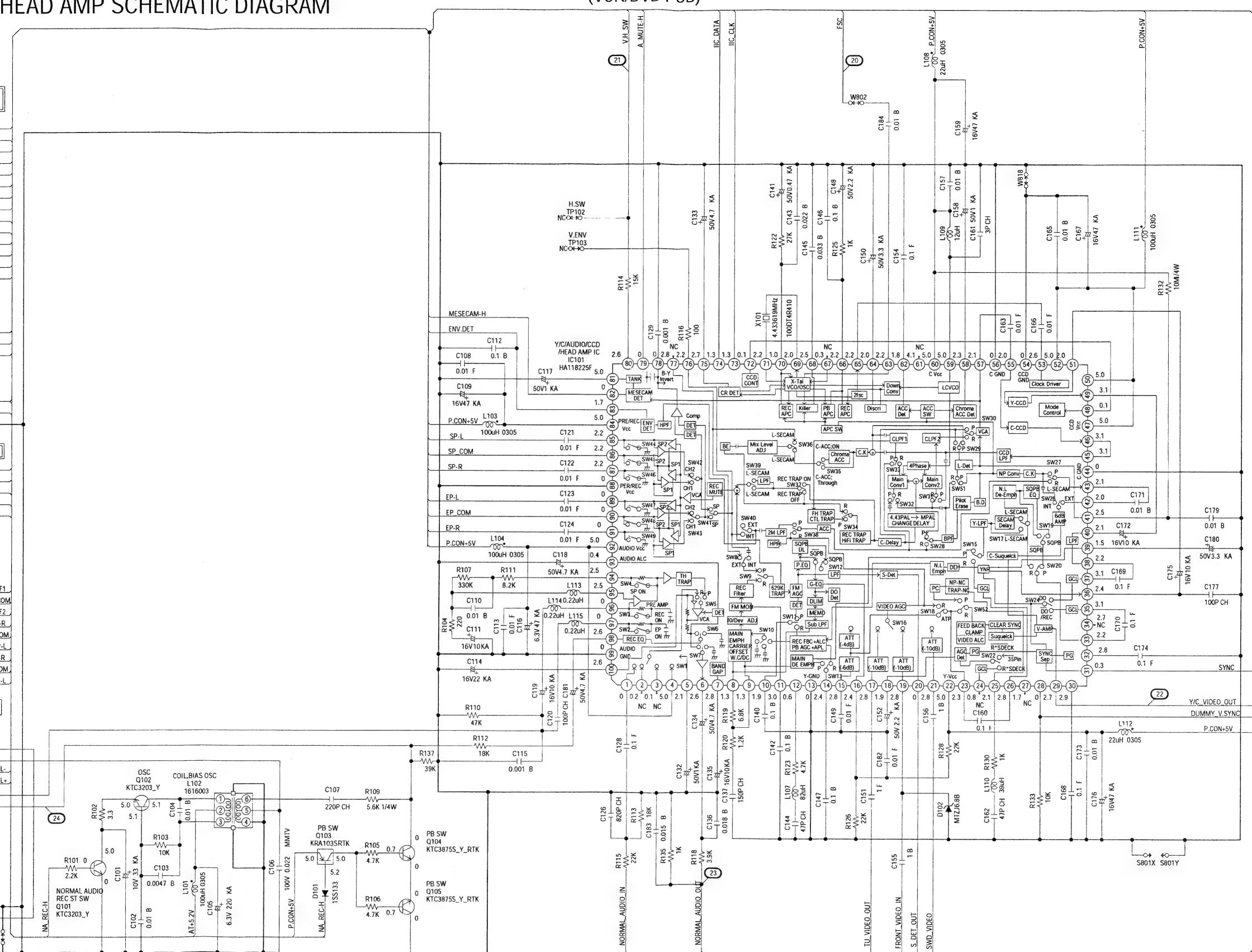
CP101 TOC-C09X-A1
9 HF1 (R) HF1
8 HF_COM HF_COM
7 HF2 (L) HF2
6 SP-CH1 (R) SP-R
5 SP_COM SP_COM
4 SP-CH2 (L) SP-L
3 EP/LP-CH1 (R) EP-R
2 EP/LP_COM EP_COM
1 EP/LP-CH2 (L) EP-L

FROM/TO HEAD AUDIO CONTROL

CP102 IMSA-9604S-06Z14
1 AE HEAD(-)
2 AE HEAD(+)
3 CTL-
4 CTL+
5 AUDIO PB
6 AUDIO REC

TO FULL ERASE HEAD

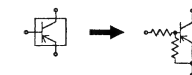
CP103 B2013H02-2P
1 FE HEAD(GND)
2 FE HEAD(HOT)



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

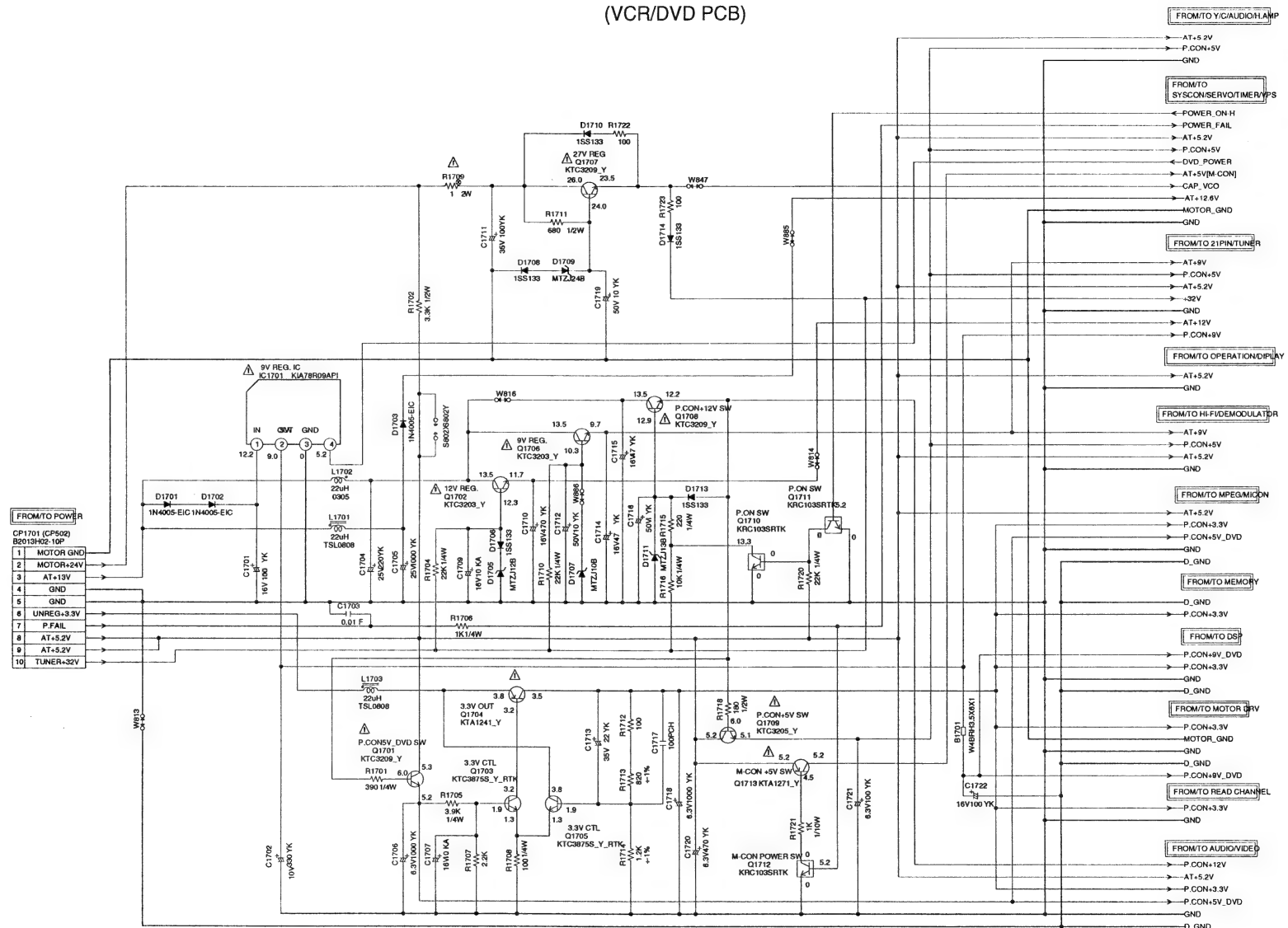
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR



PCB800
VMB268

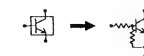
(VCR/DVD PCB)



NOTE: THE DC VOLTAGE EACH PART IN THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME MEASURED WITH THE DIGITAL TESTER. PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE DURING PLAYBACK.

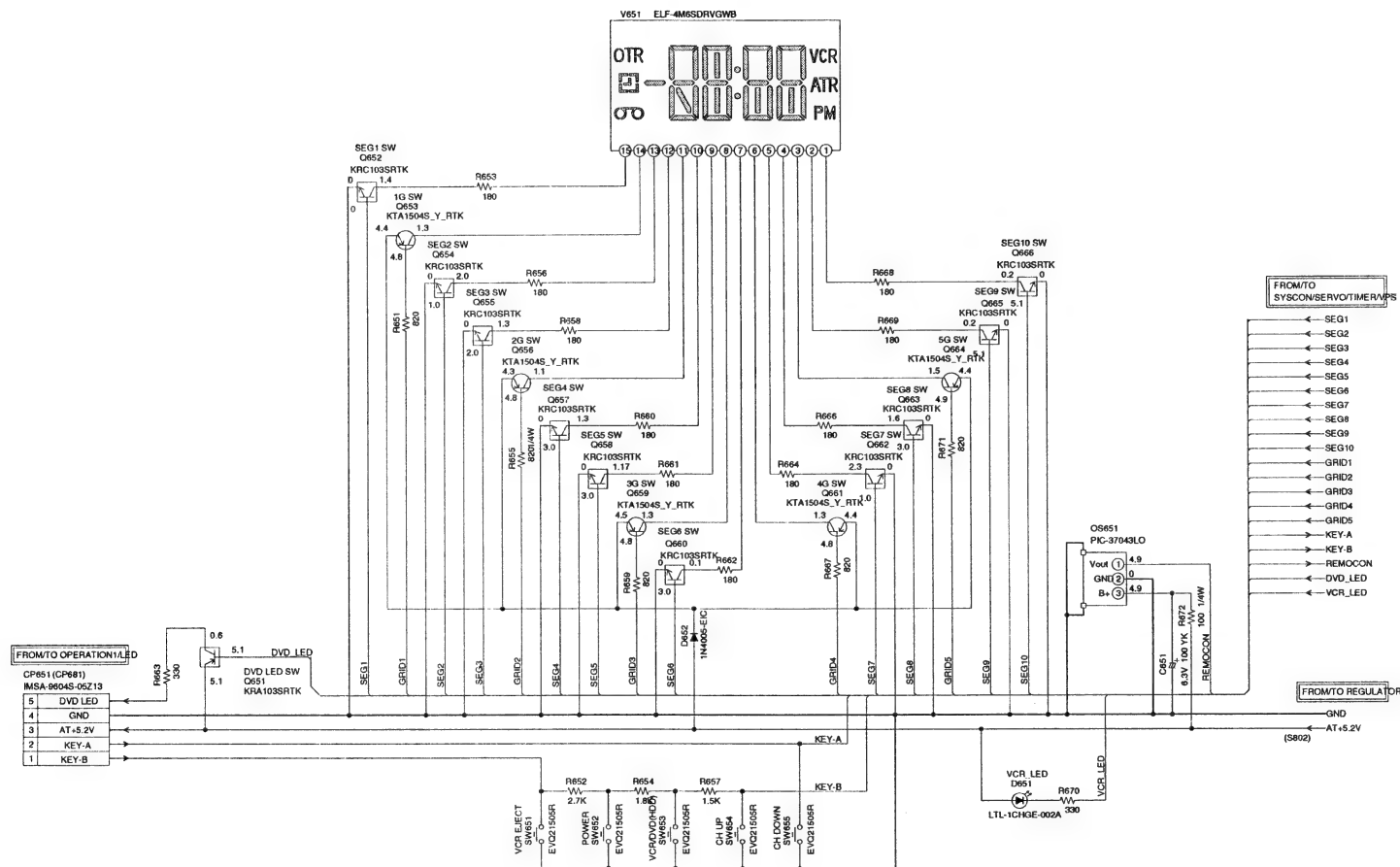
ATTENTION / **CAUTION**
 LES PIÈCES RÉPARÉES PAR UNE AUTRE ENTREPRISE QUE CELLE D'ORIGINE SONT DANGEREUSES AU POINT DE VUE SÉCURITÉ. SEULEMENT LES PIÈCES MARQUÉES PAR LA NOMENCLATURE DES PIÈCES SONT PERMISES.
 ONLY PARTS REPAIRED BY THE ORIGINAL MANUFACTURER ARE CRITICAL FOR SAFETY. USE ONLY PARTS MARKED BY THE PARTS LIST ONLY.

CAUTION: DIGITAL TRANSISTOR



OPERATION/DISPLAY SCHEMATIC DIAGRAM

(VCR/DVD PCB)



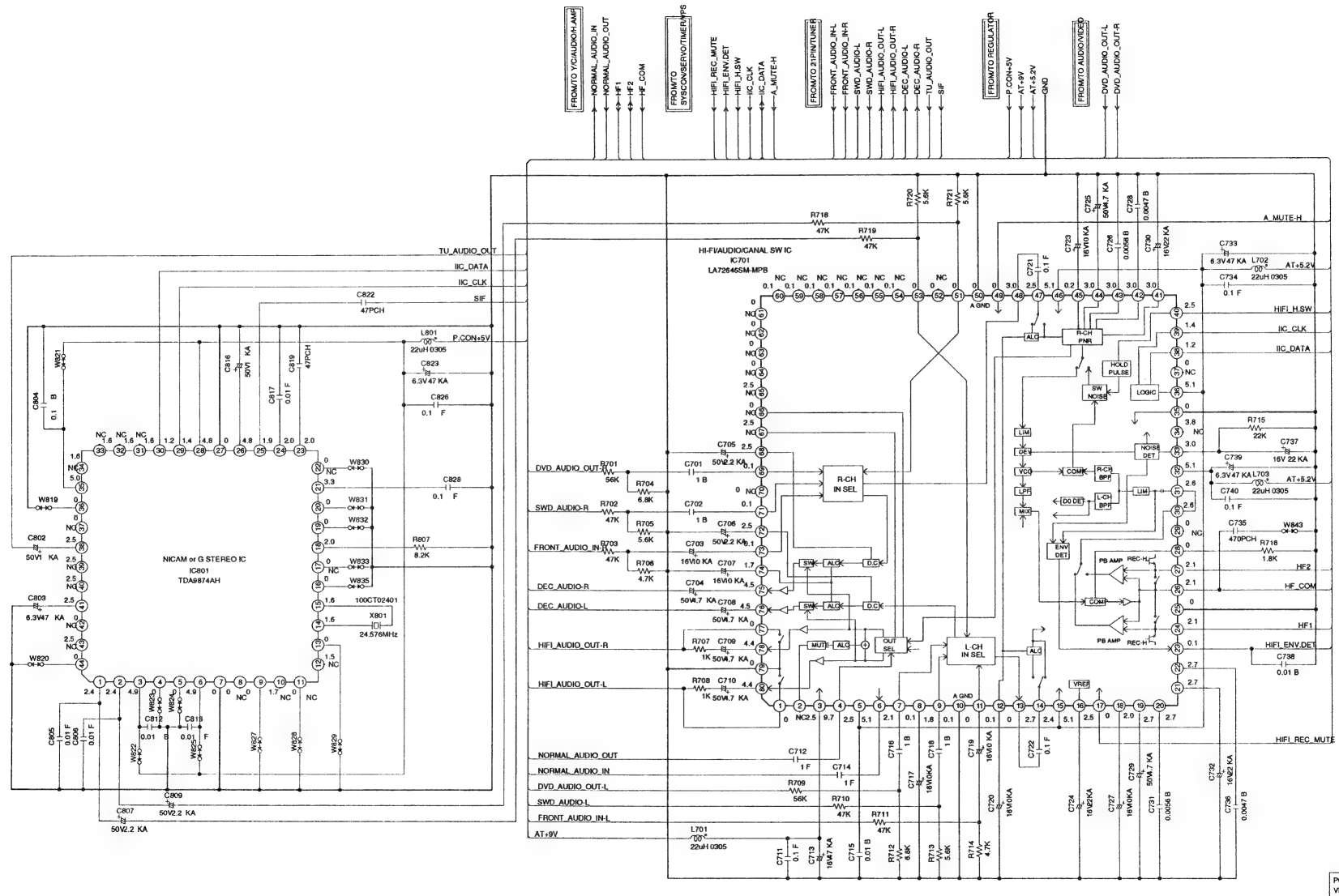
CAUTION: DIGITAL TRANSISTOR NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK. THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

PCB000
VMB280

Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR/DVD PCB)

PIN	STEREO	NCAM
1	OUTL	OUTL
2	OUTR	OUTR
3	CDE1	VDDA1
4	NC	VSSA1
5	NC	VSSD1
6	CDE2	VDDO1
7	AGND	VSSD2
8	AF11	NC
9	NC	TP2
10	AF10	NCAM
11	NC	TP1
12	NC	PCLK
13	AFR	ADDR1
14	LF1	XTALO
15	XTAL	XTAL1
16	NC	TP3
17	NC	TEST2
18	LF2	IREF
19	NC	ADDR2
20	NC	VSSA2
21	MAD	VDEC
22	NC	TEST1
23	NC	SF2
24	CAF1	VREF1
25	IFINT	SIF1
26	CAF2	CRESET
27	DGND	VSSA3
28	VCC	VDDA3
29	SCL	SCL
30	SDA	SDA
31	LPF	SDO
32	AF20	WS
33	AF21	SK
34	CTRG	SYSCLK
35	CID	VDDO3
36	NC	VSSD3
37	P1	P1
38	EXTM	MONOIN
39	EXTIR	EXTIR
40	EXTL	EXTL
41	VREF	VREF2
42	P2	P2
43	OUTM	OUTM
44	NC	VSSA4



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK. THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

(VCR/DVD PCB)



NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCBB00
VMB288

[illegible]

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCBB00
VMB288

DSP SCHEMATIC DIAGRAM

(VCR/DVD PCB)

FROM/TO READ CHANNEL

VR
LDON1
LDON2
XINTR
ADDRREC
ADPH
ADTE
ADFE
RFP
RFN
BHG
WG
TEC
FOT
TOST
FC
BST
TBAL
FBAL
SGC
DVD_CD
DEFECTO

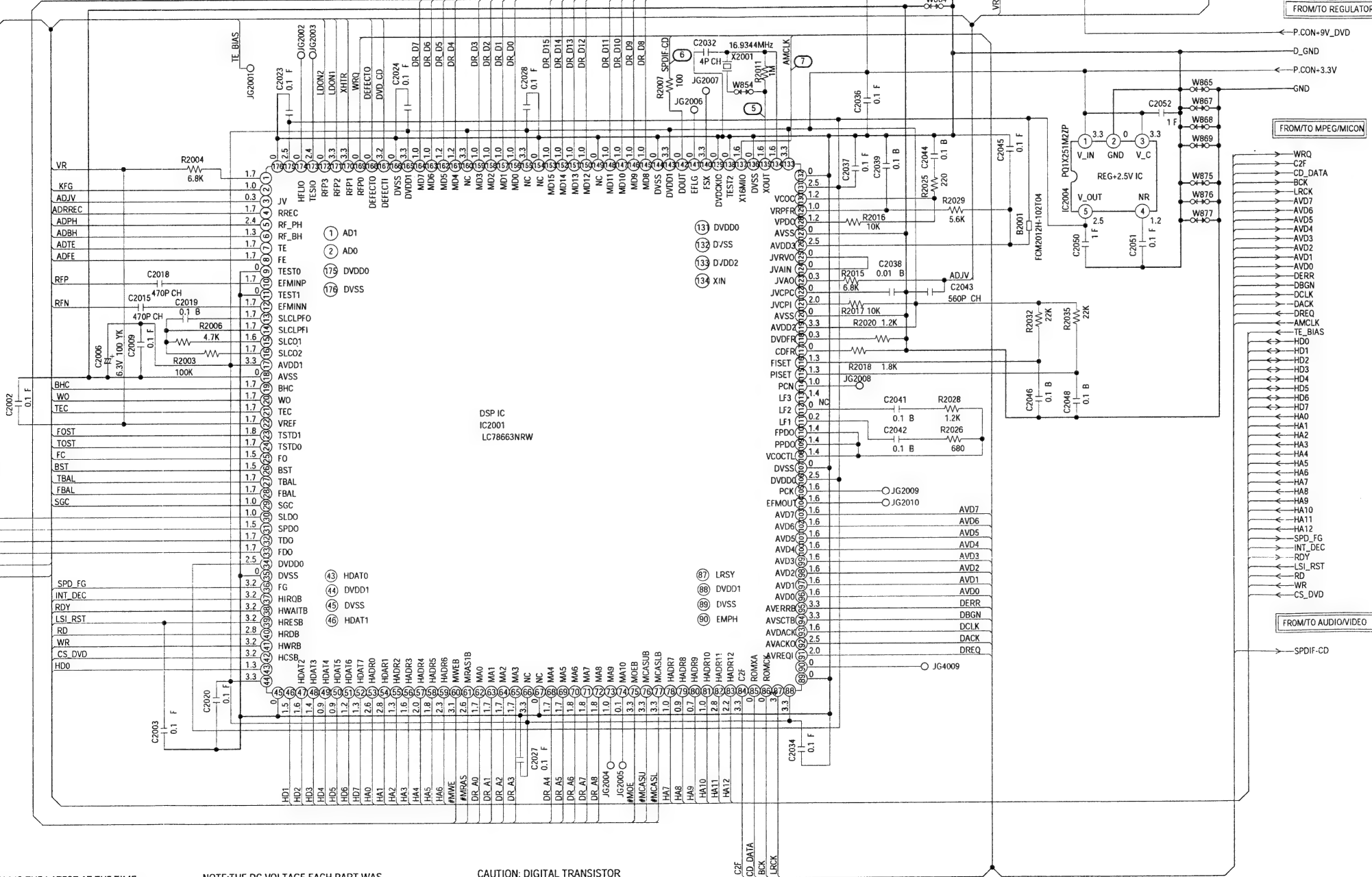
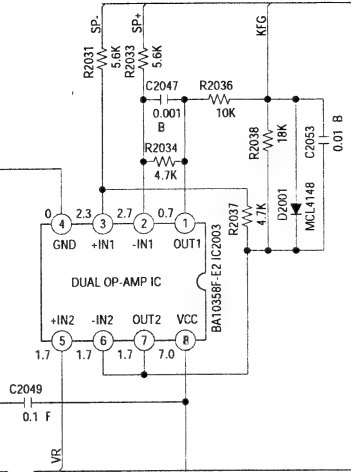
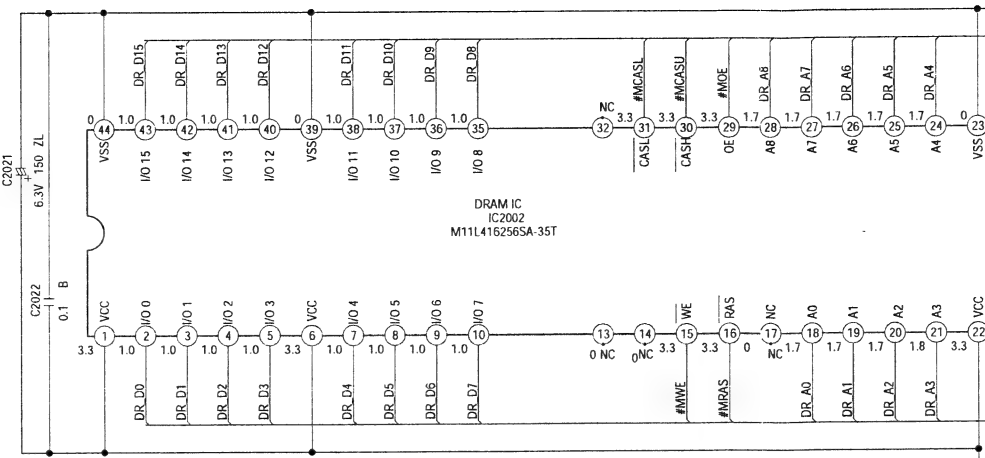
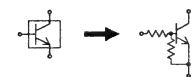
FROM/TO MOTOR DRV

VR
SLD
SPD
TD
FD
SP
SP

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



FROM/TO REGULATOR

FROM/TO MPEG/MICON

FROM/TO AUDIO/VIDEO

PCB800
VMB288

MPEG/MICON SCHEMATIC DIAGRAM (VCR/DVD PCB)

FROM/TO AUDIO/VIDEO

DAC_C_VIDEO
DAC_B_VIDEO
DAC_D_VIDEO
SPDIF-DVD
ASDATA
ABCLK
ALRCLK
MDI
MG
ML

FROM/TO DSP

AMCLK
AVD7
AVD6
AVD5
AVD4
AVD3
AVD2
AVD1
AVD0
DREQ
DERR
DBGN
DCLK
C2F
LRCK
BCK
CD_DATA
LSI_RST
RDY
INT_DEC
WRQ
TE_BIAS
HD0
HD1
HD2
HD3
HD4
HD5
HD6
HD7
HA0
HA1
HA2
HA3
HA4
HA5
HA6
HA7
HA8
HA9
HA10
HA11
HA12
RD
WR
CS_DVB
SPD_FG

FROM/TO MOTOR_DRV

OPEN
DMUTE
CLS_SW
LSW
CLOSE
P.CON+ASV

FROM/TO READ CHANNEL

GUP
P.CON+ASV

FROM/TO REGULATOR

GND

D_GND

P.CON+5V_DVD

P.CON+3.3V

AT+5.2V

FROM/TO SYSCON/SERVO/TIMER/VP

DVD_RESET

TX

RX

Q4003 RX BUFFER KRC103SRK

Q4004 RX BUFFER KRC103SRK

R4047 4.7K

3.3

5.1

5.0

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CAUTION: DIGITAL TRANSISTOR

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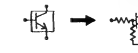
CAUTION: DIGITAL TRANSISTOR

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

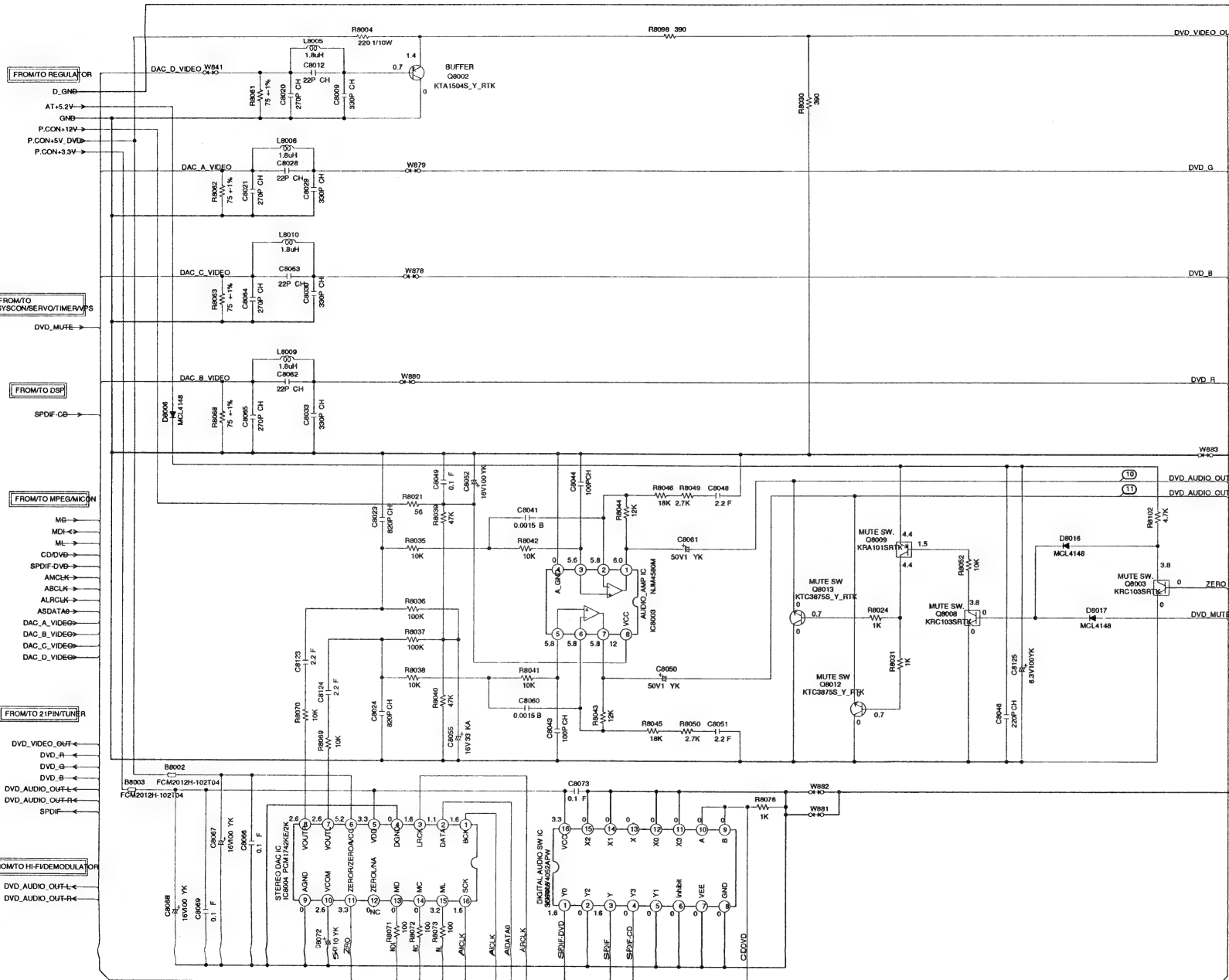
PCB000 VMB288

(VCR/DVD PCB)

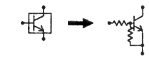


AUDIO/VIDEO SCHEMATIC DIAGRAM (DVD PCB)

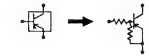
1	2	3	4
A	Y	G	CVBS Y
B	V	R	Y
C	U	B	C
D	C	CVBS	CVBS



CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



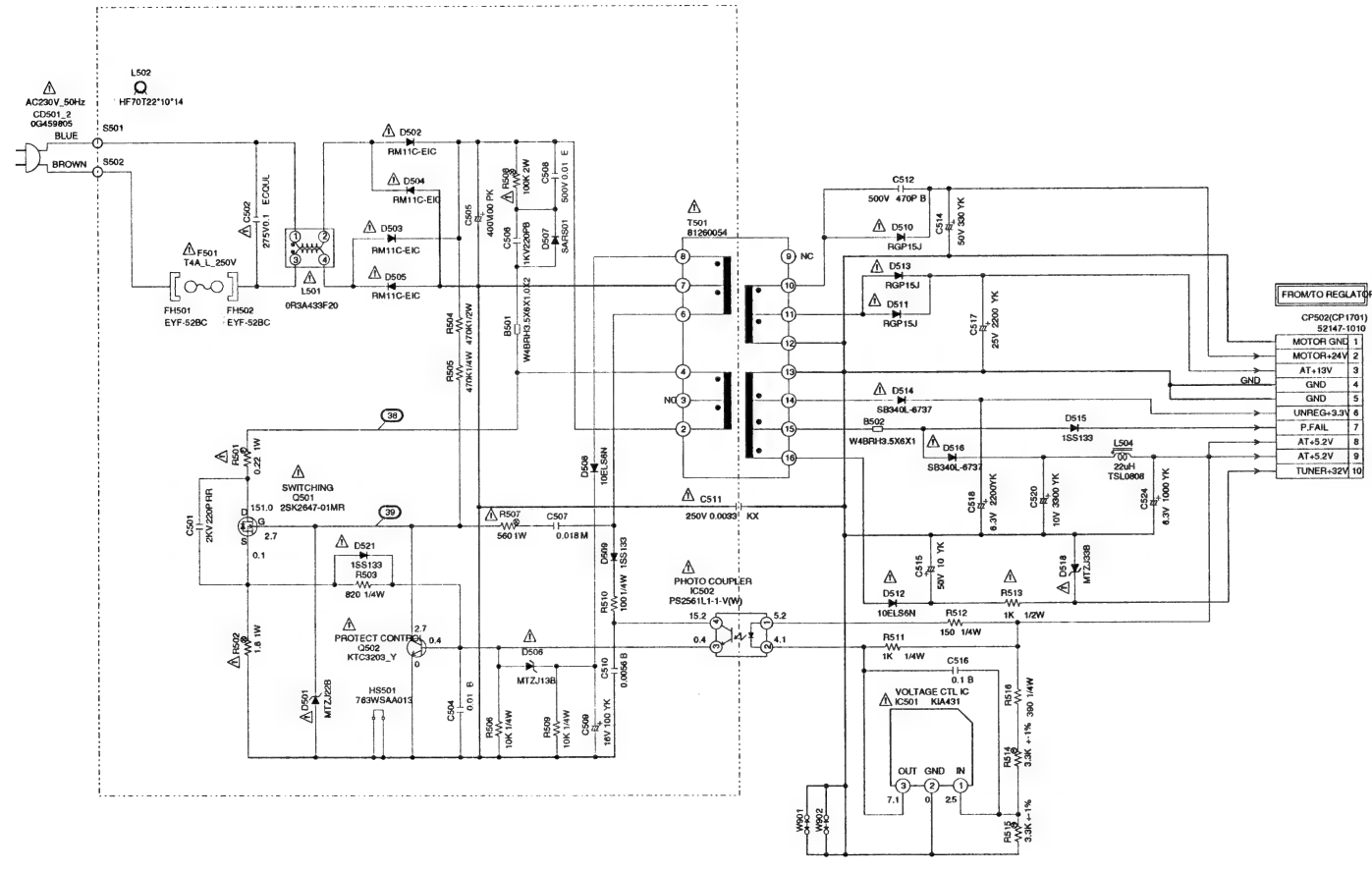
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

PCB808
VMB208

POWER SCHEMATIC DIAGRAM

(POWER PCB)



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

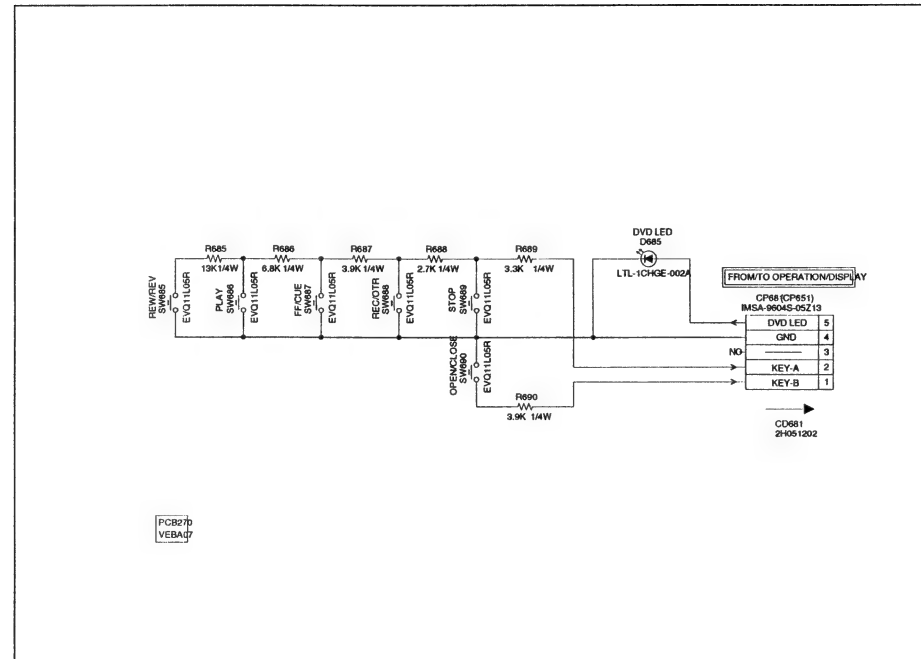
CAUTION: THESE PARTS MARKED ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN TECHNICIEN DANGEREUSES AN POINT DE VUE SECURITE. UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

PCB240
VPB163

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK. NOT THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

INTERCONNECTION DIAGRAM

CAUTION: THESE PARTS MARKED WITH A TRIANGLE ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: PIÈCES RÉPARÉES PAR UN SAVOIR-FAITANT DANGEREUSES AN POINT DE VUE SÉCURITÉ. UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

The diagram illustrates the electrical connections for a VCR, organized into several main sections:

- Left Section (Mechanical/Motor Components):** Includes connections for the DVD Drive, Optical Pick-Up, Loading Motor (LM), Spindle Motor, and Sled Motor. It also shows the Power PCB (PCB240, VFB163) and its connection to the Motor GND, Motor+24V, AT+13V, GND, UNREG+3.2V, P.FAIL, AT+5.2V, and TUNER+32V.
- Top Section (Control/Interface Components):** Features the Operation PCB (PCB270, VEB407) with connections for DVD LED, GND, AT+5.2V, KEY-A, and KEY-B. It also shows the Command Transmitter (TM601) and the Full Erase Head Ass (H5002) with connections for FE HEAD (GND), FE HEAD (HOT), and FE HEAD (HOT).
- Right Section (Sensors and Motors):** Includes the Hall Sensor, Main Coil, Rotor Magnet, MR FG Sensor, and VCC. It also shows the Capstan DD Unit (M2001), Loading Motor (M101), and the UN4001 Cylinder Unit with connections for D+PGND, D+PGOUT, D-MGND, D-WOUT, D-VOUT, and D-UOUT.
- Bottom Section (Audio and Video Connections):** Details the connections for the Audio Out Coaxial (J8001), Video Out (V.O.U.T.), and various other signals like A.O.U.T., A.I.N., SDA, and BB.

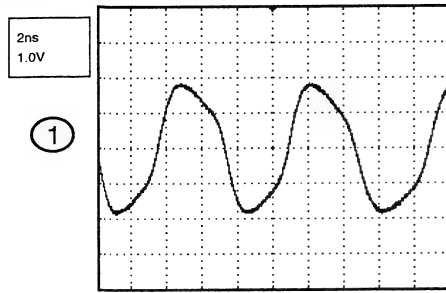
The diagram uses a grid system with letters A through H across the top and bottom, and numbers 1 through 8 along the left and right sides.

ATTENTION LES PIÈCES RÉPARÉES PAR UN
DANGEREUSES AU POINT DE VUE SÉCURITÉ
UTILISER QUE CELLES DÉCRITES
DANS LA NOMENCLATURE DES PIÈCES

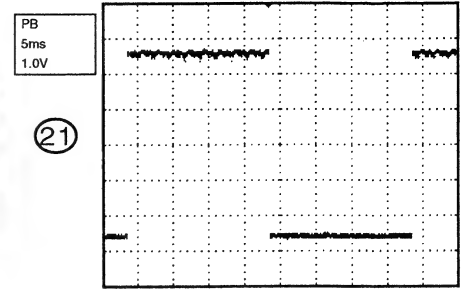
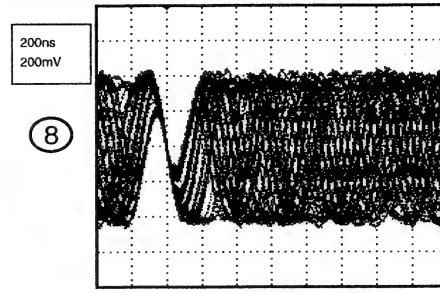
NOTE THIS INTERCONNECTION DIAGRAM IS THE LATEST
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

WAVEFORMS

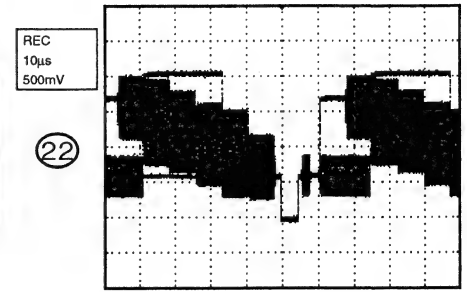
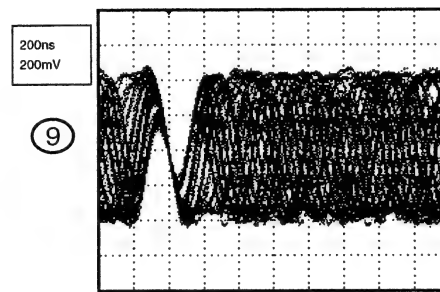
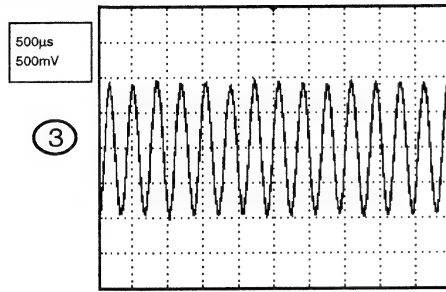
MPEG/MICON



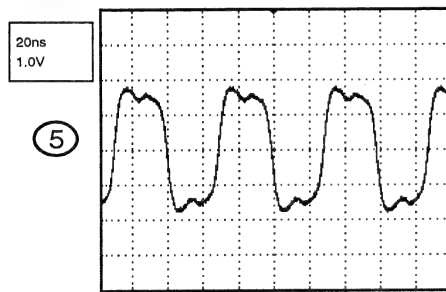
READ CHANNEL



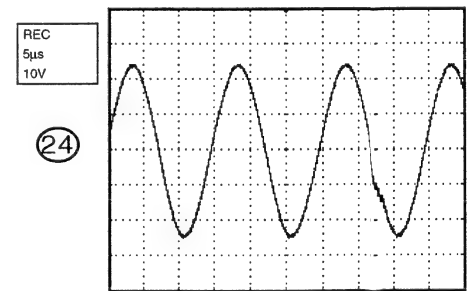
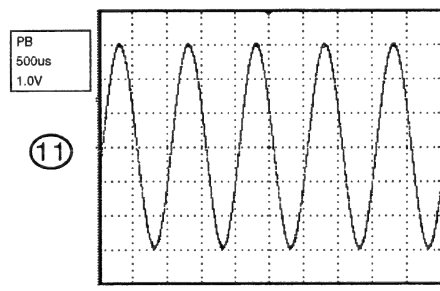
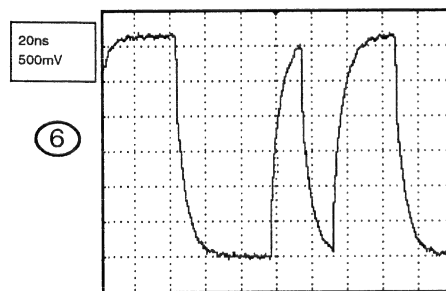
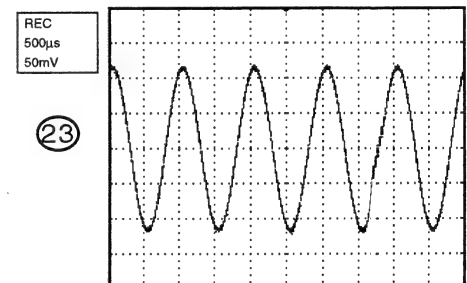
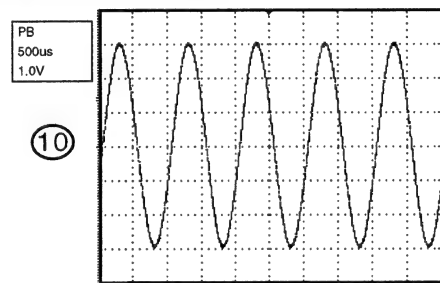
MEMORY



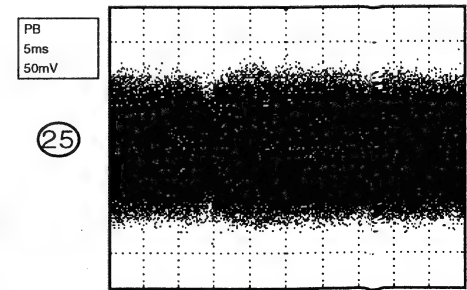
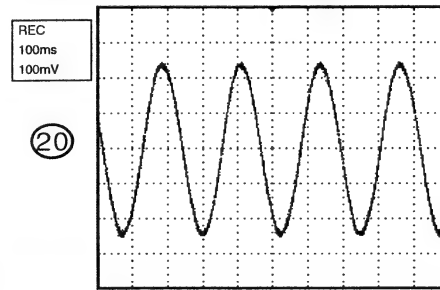
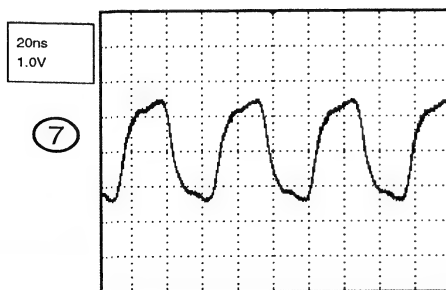
DSP



AUDIO/VIDEO



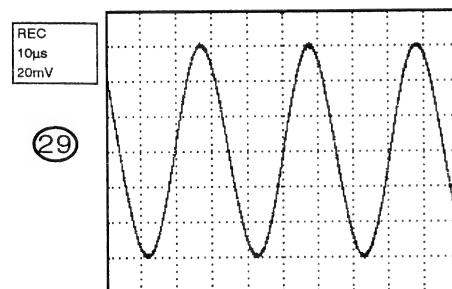
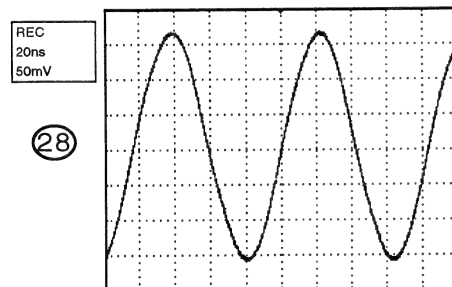
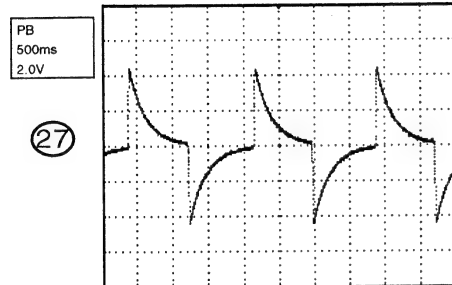
Y/C/AUDIO/HEAD AMP



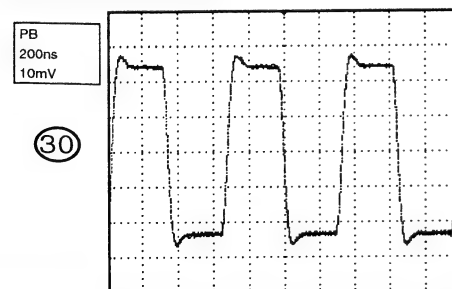
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

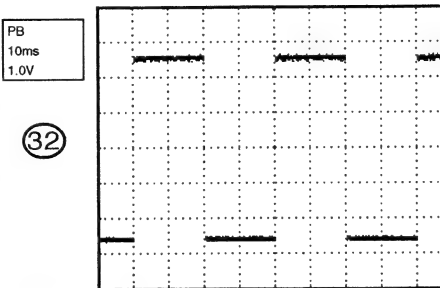
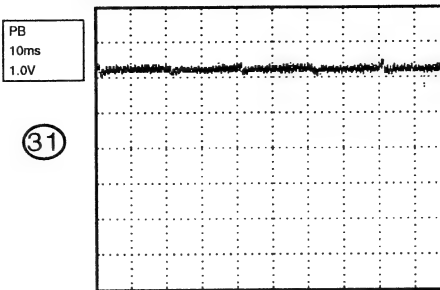
SYSCON/SERVO/TIMER/VPS



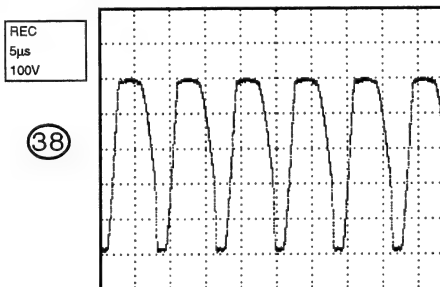
21PIN/TUNER



Hi-Fi/DEMODULATOR

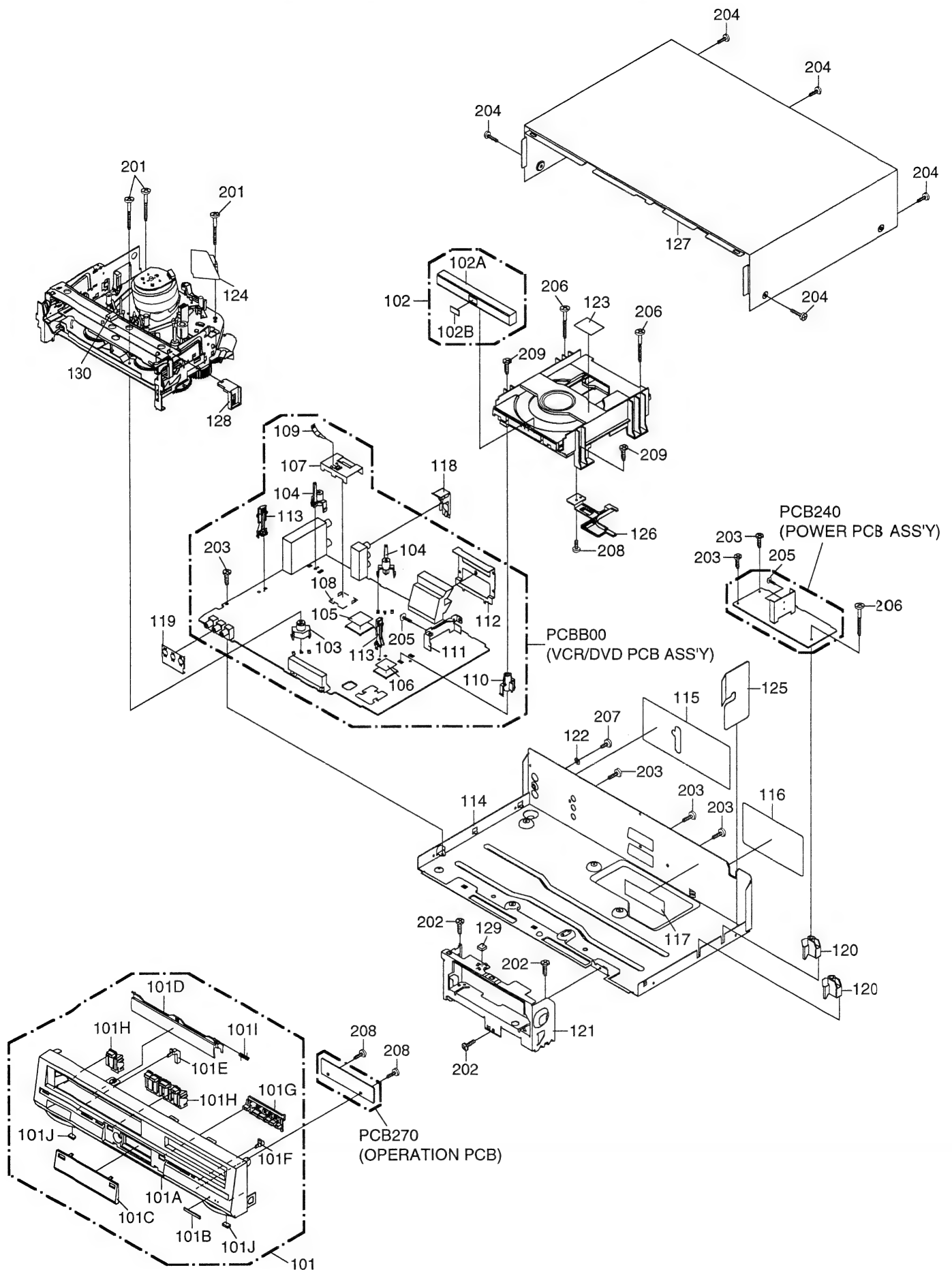


POWER

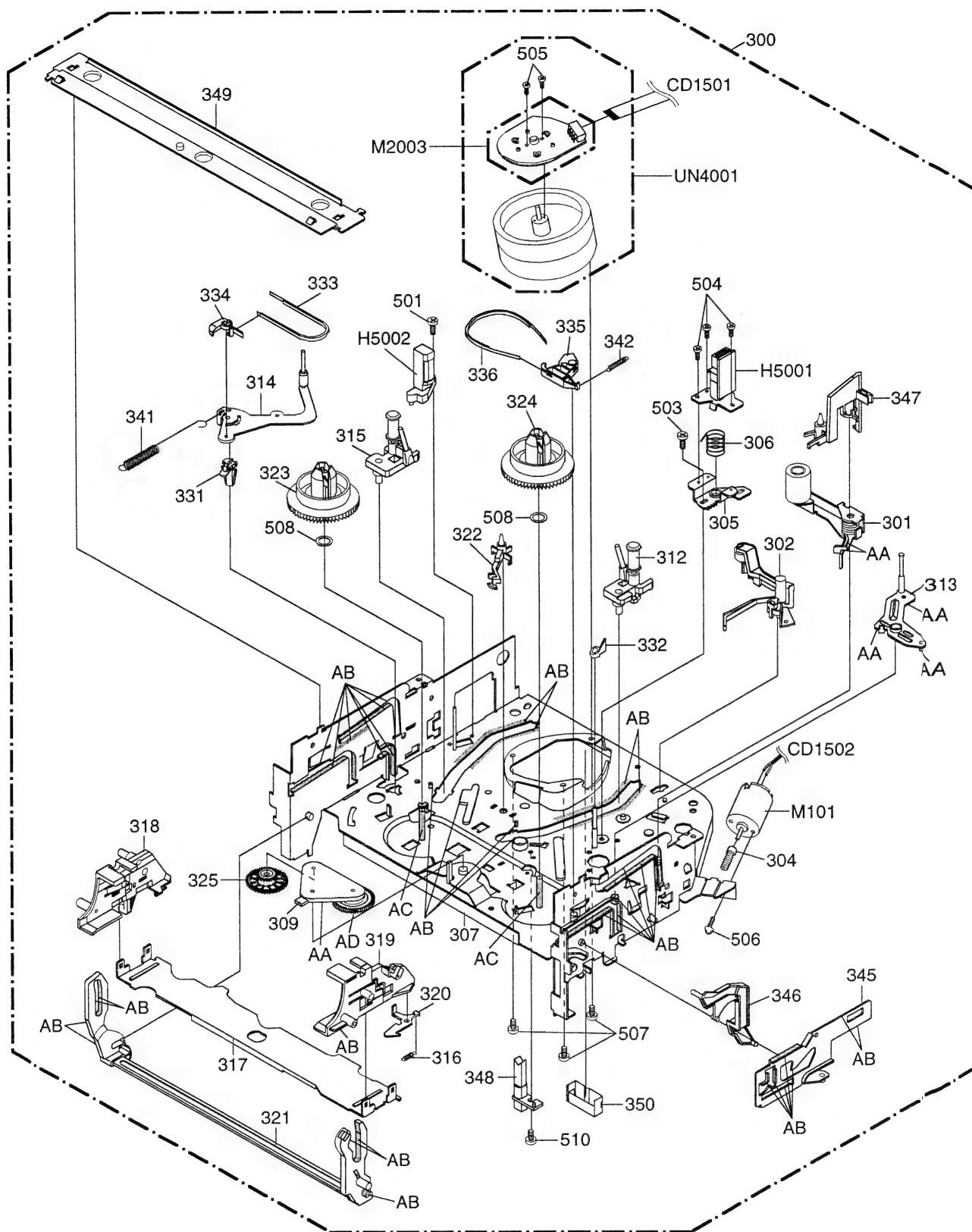


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



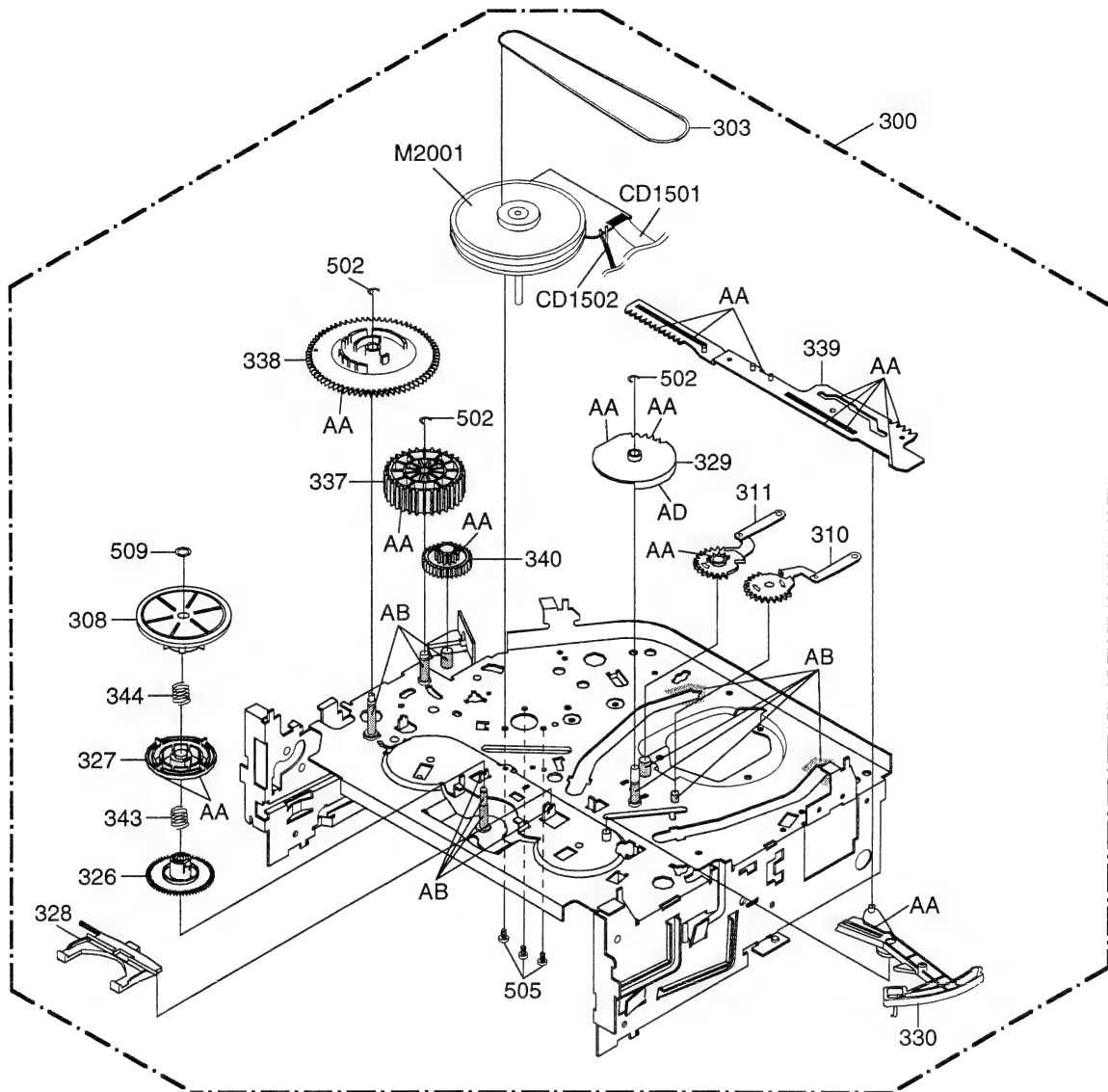
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

NOTE: Applying positions AA, AB, AC and AD for the grease are displayed for this section. Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

NOTE: Applying positions AA, AB, AC and AD for the grease are displayed for this section. Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
101	A2C412T720K	CABINET,FRONT ASSY	
101A	701WPJ1200	CABINET,FRONT	
101B	711WPC0005	BADGE,BRAND	
101C	711WPD0638	PLATE,DISPLAY	
101D	712WPJ0814	FLAP	
101E	713WPA0193	GLASS,LED-VCR	
101F	713WPA0194	GLASS,LED-DVD	
101G	735WPB0258	BUTTON,FRAME-DVD	
101H	735WPB0259	BUTTON,FRAME-VCR	
101I	743WKA0042	SPRING,FLAP	
101J	800WFA0051	CUSHION,LEG	
102	A2C412T770K	PLATE TRAY FRONT ASSY	
102A	712WPB0140	PLATE,TRAY-FRONT	
102B	7235630001	SHEET,DVD	
103	701WPA0686	HOLDER,DECK	
104	701WPA0751	HOLDER,DECK	
105	7230007556	SHEET,IC	
106	7230007623	SHEET,IC	
107	752WSA0230	SHIELD,CASE HEAD AMP	
108	752WSA0308	SHIELD,COVER HEAD AMP	
109	753WUAA006	SPRING,EARTH HEAD AMP	
110	761WPA0260	HOLDER,DVD BL	
111	761WSA0102	ANGLE,PCB	
112	761WSA0104	SHIELD,21PIN	
113	85OP700038	HOLDER,END SENSOR	
114	702WSA0168	PLATE,BOTTOM	
115	7220001168	SHEET,JACK	
116	7222022630	SHEET,RATING	
117	7260000341	SHEET,CAUTION	
118	752WSA0290	SHIELD,COMPO	
119	752WUA0001	SHIELD,3-PIN	
120	761WPA0261	HOLDER,DVD BR	
121	761WSA0101	ANGLE,FRONT	
122	800WB00004	FIBER WASHER	7x3.2xT0.5
123	7260000342	SHEET,CAUTION	
124	752WSA0275	COVER,AC HEAD	
125	755WNA0021	SHEET,POWER	
126	761WPA0250	HOLDER,FFC	
127	702WSB0081	CABINET,TOP	
128	761WPA0262	HOLDER,DECK TOP	
129	8965TS1010	CUSHION	65TS 10-10H L=10
130	8965TS1017	CUSHION	65TS10-10H L17.5
201	8109130B94	SCREW,TAP TITE(B) R PAN	3x29
202	8109230704	SCREW,TAP TITE(B) R BIND	3x7
203	8109230804	SCREW,TAP TITE(B) BIND	3x8
204	8109K30601	SCREW,TAP TITE(B) BIND(3D)	3x6
205	8109I30A04	SCREW,TAP TITE(B) WH7	3x10
206	8154D30334	SCREW,TAP TITE(B) WH8	3x33R
207	8107130404	SCREW,TAP TITE(S) PAN	3x4
208	8110226804	SCREW,TAP TITE(P) BIND	2.6x8
209	8102230804	SCREW,BIND	M3x8
---	791UHA0014	GIFT SHEET	
---	792UHA0186	PACKAGE,FRONT	
---	792UHA0187	PACKAGE,BACK	
---	793UCD1190	GIFT BOX	
---	795UCA0021	PAD,DVD/VR	155x250
---	A2C412N975	INSTRUCTION BOOK KIT	
---	JB5X0300	POLYBAG,INSTRUCTION	
---	J2C41201A	INSTRUCTION BOOK	
---	J2C41207A	QUICK SET-UP SHEET	
---	J4E00129	INFORMATION SHEET	

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A2C412N420A	DECK ASSY A2C412N420A	501	8107226804	SCREW,TAP TITE(S) BIND 2.6x8
301	85OA400234	PINCH ROLLER BLOCK	502	83ETW30000	E-RING 3.0
302	85OA500026	AHC ASS'Y	503	8107226404	SCREW,TAP TITE(S) BIND 2.6x4
303	85OP200290	BELT,CAPSTAN (S)	504	8102120604	SCREW,PAN M2x6
304	85OP600581	WORM	505	8109126604	SCREW,TAP TITE(B) PAN 2.6x6
305	85OP500083	BASE,AC HEAD	506	810A130404	SCREW/WASHER(A) M3x4
306	85OP800324	SPRING,AC HEAD	507	810A126504	SCREW/WASHER(A) M2.6x5
307	85OA000459	MAIN CHASSIS ASS'Y	508	82Q264713N	POLYSLIDER WASHER 2.6x4.7xT0.13
308	85OA200089	CLUTCH ASS'Y	509	82P184505N	POLYSLIDER WASHER(CUT) 1.8x4.5xT0.5
309	85OA200090	ARM IDLER ASS'Y	510	8107226604	SCREW,TAP TITE(S) BIND 2.6x6
310	85OA300065	LOADING ARM S UNIT	CD1501	122H071603	CORD JUMPER SMCD-7X151
311	85OA300066	LOADING ARM T UNIT	CD1502	122Y021902	CORD JUMPER 2Y021902
312	85OA400223	INCLINED BASE T UNIT 3S	H5001	1523Q91003	HEAD (AUDIO CONTROL) VTR-1X2RPE22-756
313	85OA400232	P5 ARM ASS'Y 2	H5002	1543Q02014	HEAD (FULL ERASE) VTR-1X2ERS11-154
314	85OA400235	TENSION ARM ASS'Y 2	△ M101	1596S98001	MOTOR (LOADING) MDB2B66
315	85OA400231	INCLINED BASE S UNIT	△ M2001	1510S98036	CAPSTAN DD UNIT F2QVB08
316	85OP800358	SPRING,LOCKER	M2003	1589S11017	MICRO MOTOR I2OAL05 or
317	85OP900736	CASS,HOLDER		1589S11015	MICRO MOTOR I2OAL01
318	85OP900748	CASS,SIDE L	△ UN4001	A2A741B500	CYLINDER UNIT ASS'Y A2A741B500
319	85OP900749	CASS,SIDE R			
320	85OP900739	LOCKER,R			
321	85OA900228	LINK UNIT			
322	85OP000496	POST,CASS GUIDE			
323	85OP200316	REEL,S (S)			
324	85OP200317	REEL,T (S)			
325	85OP200308	GEAR,IDLER			
326	85OP200311	GEAR,CLUTCH			
327	85OP200312	GEAR,COUPLING			
328	85OP200313	LEVER,CLUTCH			
329	85OP300194	GEAR,MAIN LOADING			
330	85OP400490	LEVER,TENSION			
331	85OP400492	HOLDER,TENSION			
332	85OP400520	CAP,P4			
333	85OP400542	BAND,TENSION			
334	85OP400533	CONNECT,TENSION			
335	85OP600573	ARM,BRAKE T			
336	85OP600584	BAND,BRAKE T			
337	85OP600577	CAM,PINCH ROLLER			
338	85OP600578	CAM,MAIN			
339	85OP600579	ROD,MAIN			
340	85OP600582	GEAR,JOINT			
341	85OP800322	SPRING,TENSION			
342	85OP800360	SPRING,BRAKE T			
343	85OP800355	SPRING,COUPLING			
344	85OP800356	SPRING,RING			
345	85OP900750	LEVER,LINK 2			
346	85OP900744	LEVER,FLAP			
347	85OP900745	CASS,OPENER			
348	85OP700035	REFLECTOR,LED			
349	85OP900746	BRACKET, TOP 3V			
350	752WSA0327	SHIELD,COVER FPC			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
RESISTORS				ICS			
△ R501	R63581R22J	R,FUSE	0.22 OHM 1W	IC2301	I03F065600	IC	LA6560
R502	R3X1811R8J	R,METAL OXIDE	1.8 OHM 1W	IC2601	I03FR97030	IC	LA9703WL
△ R507	R3X181561J	R,METAL OXIDE	560 OHM 1W	IC3001	I56F57088A	IC	OEC7088A
△ R508	R3X18A104J	R,METAL OXIDE	100K OHM 2W	IC3002	I9UF032310	IC	PST3231NR
△ R513	R002T2102J	RC	1K OHM 1/2W	IC3003	I56F07082A	IC	OEC7082A
△ R1709	R3X18A010J	R,METAL OXIDE	1 OHM 2W	IC3099	A2C412TB05	IC	S-24C08ADP-01
R3052	R002T4472J	RC	4.7K OHM 1/4W	IC4001	ICQK067420	IC	ZR36742
CAPACITORS				IC4002	I5HJ004BF0	IC	S-24C04BFJ-TB
C501	COPLRR7H2K	CC	220 PF 2KV R	IC4003	I0GF9XZ010	IC	PQ070XZ01ZP
△ C502	P2122B104M	CMP	0.1 UF 275V ECQUL or	IC4005	I59J0160FB	IC	MSM56V16160F-8
	P2472B104M	CMP	0.1 UF 275V PHE840	IC4007	ICMJ0800A7	IC	SST39VF800A-70-4C-EK
C505	E62QFH101M	CE	100 UF 400V	IC8001	I03F0026A0	IC	LA73026AV-TLM-E
C508	C0JFE0514M	CC	0.01 UF 500V E	IC8003	I0QF045800	IC	NJM4580M
△ C511	CD39E0ML3M	CC	0.0033UF 250V	IC8004	I17F0742K0	IC	PCM1742KE/2K
C517	E02LF3222M	CE	2200 UF 25V	IC8005	I0QF02533V	IC	NJM2533V(TE2)
C520	E02LF1332M	CE	3300 UF 10V	IC8006	I5CF040520	IC	SN74LV4052APW
C1705	E02LF3102M	CE	1000 UF 25V	IC8007	I07F033080	IC	BA3308F
DIODES				TRANSISTORS			
D101	D1VT001330	DIODE,SILICON	1SS133T-77	Q101	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
D102	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77	Q102	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
△ D501	D97U02201B	DIODE,ZENER	MTZJ22B T-77	Q103	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
△ D502	D2WTRM11C0	DIODE,SILICON	RM11C-EIC	Q104	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
△ D503	D2WTRM11C0	DIODE,SILICON	RM11C-EIC	Q105	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
△ D504	D2WTRM11C0	DIODE,SILICON	RM11C-EIC	△ Q501	T410K26470	FET	2SK2647-01MR
△ D505	D2WTRM11C0	DIODE,SILICON	RM11C-EIC	△ Q502	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
△ D506	D97U01301B	DIODE,ZENER	MTZJ13B T-77	Q651	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
D507	D2BXARS010	DIODE,SILICON	SARS01-V1	Q652	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D508	D28TELS6N6	DIODE,RECTIFER	10ELS6N-TA1B2	Q653	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
D509	D1VT001330	DIODE,SILICON	1SS133T-77	Q654	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D510	D23TGP15J0	DIODE,SILICON	RGF15J-G23	Q655	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D511	D23TGP15J0	DIODE,SILICON	RGF15J-G23	Q656	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
△ D512	D28TELS6N6	DIODE,RECTIFER	10ELS6N-TA1B2	Q657	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D513	D23TGP15J0	DIODE,SILICON	RGF15J-G23	Q658	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D514	D2LKB340L0	DIODE,SCHOTTKY	SB340L-6737	Q659	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
D515	D1VT001330	DIODE,SILICON	1SS133T-77	Q660	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D516	D2LKB340L0	DIODE,SCHOTTKY	SB340L-6737	Q661	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
△ D518	D97U03301B	DIODE,ZENER	MTZJ33B T-77	Q662	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D521	D1VT001330	DIODE,SILICON	1SS133T-77	Q663	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D651	0021E5Q210	LED	LTL-1CHGE-002A	Q664	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
D652	D2WXN40050	DIODE,SILICON	1N4005-EIC	Q665	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D685	0021E5Q210	LED	LTL-1CHGE-002A	Q666	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D1701	D2WXN40050	DIODE,SILICON	1N4005-EIC	Q1701	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
D1702	D2WXN40050	DIODE,SILICON	1N4005-EIC	Q1702	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
D1703	D2WXN40050	DIODE,SILICON	1N4005-EIC	Q1703	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
D1705	D97U01201B	DIODE,ZENER	MTZJ12B T-77	Q1704	TAAT01241Y	TRANSISTOR,SILICON	KTA1241_Y-AT
D1706	D1VT001330	DIODE,SILICON	1SS133T-77	Q1705	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
D1707	D97U01001B	DIODE,ZENER	MTZJ10B T-77	Q1706	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
D1708	D1VT001330	DIODE,SILICON	1SS133T-77	Q1707	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
D1709	D97U02401B	DIODE,ZENER	MTZJ24B T-77	Q1708	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
D1710	D1VT001330	DIODE,SILICON	1SS133T-77	Q1709	TCAT03205Y	TRANSISTOR,SILICON	KTC3205_Y-AT
D1711	D97U01301B	DIODE,ZENER	MTZJ13B T-77	Q1710	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D1713	D1VT001330	DIODE,SILICON	1SS133T-77	Q1711	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D1714	D1VT001330	DIODE,SILICON	1SS133T-77	Q1712	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D2001	DDDRL41480	DIODE,SILICON	MCL4148	Q1713	TAAT012714	TRANSISTOR,SILICON	KTA1271_Y-AT
D2601	DDARDS1210	DIODE,SILICON	KDS121RTK	Q2602	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
D2602	DDARDS1200	DIODE,SILICON	KDS120RTK	Q2604	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
D3001	0010E00330	INFRARED LED	LTE-3271T-012A-O	Q2605	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT1/6
D3002	D1VT001330	DIODE,SILICON	1SS133T-77	Q2606	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
D4003	D1VT001330	DIODE,SILICON	1SS133T-77	Q2608	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
D8004	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77	Q2609	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT1/6
D8006	DDDRL41480	DIODE,SILICON	MCL4148	Q3001	0000M00390	PHOTO TRANSISTOR	ST-304L
D8007	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77	Q3002	0000M00390	PHOTO TRANSISTOR	ST-304L
D8011	DDDRL41480	DIODE,SILICON	MCL4148	Q3003	0002700680	PHOTO COUPLER	RPI-352C40N
D8012	DDDRL41480	DIODE,SILICON	MCL4148	Q3006	0002700680	PHOTO COUPLER	RPI-352C40N
D8016	DDDRL41480	DIODE,SILICON	MCL4148	Q3008	0002700690	PHOTO COUPLER	RPI-303
D8017	DDDRL41480	DIODE,SILICON	MCL4148	Q3009	0002700690	PHOTO COUPLER	RPI-303
ICS				Q3010	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
IC101	I04F38225F	IC	HA118225F	Q4001	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ IC501	I1KJ9A4310	IC	KIA431	Q4002	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ IC502	000220001W	PHOTO COUPLER	PS2561L1-1-V(W)	Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
IC701	I03F7646SM	IC	LA72646SM-MPB	Q4004	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
IC801	I0KFA9874A	IC	TD9874AH	Q8001	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
△ IC1701	I1KA98R09A	IC	KIA78R09API	Q8002	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
IC2001	I53K08663R	IC	LC78663NRW	Q8003	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
IC2002	ICUJ062569	IC	M11L416256SA-35T	Q8007	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
IC2003	I07E00358F	IC	BA10358F-E2	Q8008	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
IC2004	I0GF9X2510	IC	PQ1X251M2ZP	Q8009	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
TRANSISTORS				SWITCHES			
Q8010	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK	SW689	0504R01T38	SWITCH,TACT	EVQ11L05R or
Q8012	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK		0504201T32	SWITCH,TACT	SKQNAED010
Q8013	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK	SW690	0504R01T38	SWITCH,TACT	EVQ11L05R or
Q8015	TPAAB05001	COMPOUND TRANSISTOR	KRA102SRTK		0504201T32	SWITCH,TACT	SKQNAED010
Q8016	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK	SW3001	0508S11001	SWITCH (LEAF)	LSA-1144EAU
Q8018	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK	P.C.BOARD ASSEMBLIES			
COILS & TRANSFORMERS				PCB240	A2C412T240K	PCB ASS'Y	VPB163A
L101	02167F101J	COIL	100 UH	PCB270	A2C412T270K	PCB ASS'Y	VEBA07A
L102	031616003R	COIL,BIAS OSC	1616003	PCBB00	A2C412TB00K	PCB ASS'Y	VMB288A
L103	02167F101J	COIL	100 UH	MISCELLANEOUS			
L104	02167F101J	COIL	100 UH	B501	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
L107	0216A6820K	COIL	82 UH or	B502	024HT03564	CORE,BEADS	W4BRH3.5X6X1
	021LA6820K	COIL	82 UH	B1701	024HT03564	CORE,BEADS	W4BRH3.5X6X1
L108	02167F220J	COIL	22 UH	B2001	024HC31022	CORE,BEADS	FCM2012H-102T04
L109	0216A6120K	COIL	12 UH or	B2601	024HC31022	CORE,BEADS	FCM2012H-102T04
	021LA6120K	COIL	12 UH	B2602	024HC31022	CORE,BEADS	FCM2012H-102T04
L110	0216A6390K	COIL	39 UH or	B4001	024HC31022	CORE,BEADS	FCM2012H-102T04
	021LA6390K	COIL	39 UH	B4002	024HC31022	CORE,BEADS	FCM2012H-102T04
L111	02167F101J	COIL	100 UH	B4003	024HC31022	CORE,BEADS	FCM2012H-102T04
L112	02167F220J	COIL	22 UH	B4004	024HC31022	CORE,BEADS	FCM2012H-102T04
L113	021LA6R22M	COIL	0.22 UH	B4005	024HC31022	CORE,BEADS	FCM2012H-102T04
L114	021LA6R22M	COIL	0.22 UH	B4006	024HC31022	CORE,BEADS	FCM2012H-102T04
L115	021LA6R22M	COIL	0.22 UH	B4007	024HC31022	CORE,BEADS	FCM2012H-102T04
Δ L501	029T000083	COIL,LINE FILTER	0R3A433F20	B4008	024HC31022	CORE,BEADS	FCM2012H-102T04
L502	02A6B2E0A1	CORE,FERRITE	HF70T22*10*14	B4009	024HC31022	CORE,BEADS	FCM2012H-102T04
L504	02167E220K	COIL	22 UH	B8001	024HC31022	CORE,BEADS	FCM2012H-102T04
L701	02167F220J	COIL	22 UH	B8002	024HC31022	CORE,BEADS	FCM2012H-102T04
L702	02167F220J	COIL	22 UH	B8003	024HC31022	CORE,BEADS	FCM2012H-102T04
L703	02167F220J	COIL	22 UH	BT601	141L003010	BATTERY,MANGAN	R6P(AR)XICI
L801	02167F220J	COIL	22 UH	CD102	122H061504	CORD,JUMPER	2H061504
L1701	02167E220K	COIL	22 UH	Δ CD501	120G459805	CORD,AC BUSH	0G459805
L1702	02167F220J	COIL	22 UH	CD601	06CDVA5003	CABLE,21PIN	S-1002B
L1703	02167E220K	COIL	22 UH	CD681	122H051202	CORD,JUMPER	2H051202
L3002	0216A62R2K	COIL	2.2 UH or	CP101	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
	021LA62R2K	COIL	2.2 UH	CP102	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-05Z14
L3004	0216A6101K	COIL	100 UH	CP103	067U002019	WIRE HOLDER	B2013H02-2P
L4001	02167F2R2J	COIL	2.2 UH	CP502	069R2A0589	CONNECTOR PCB SIDE	52147-1010
L8003	02167F220J	COIL	22 UH	CP651	069J750019	CONNECTOR PCB SIDE	IMSA-9604S-05Z13
L8004	02167F220J	COIL	22 UH	CP681	069J750019	CONNECTOR PCB SIDE	IMSA-9604S-05Z13
L8005	0216S71R8J	COIL	1.8 UH	CD1701	WHL6010038	FLAT CABLE AWM2468 AWG26 10C BLACK 100MM	
L8006	0216S71R8J	COIL	1.8 UH	CD2301	122H081301	CORD,JUMPER	2H081301
L8007	0216A6101K	COIL	100 UH or	CD2302	06CU251403	CORD,CONNECTOR	CU251403
	021LA6101K	COIL	100 UH	CD2601	122H002303	CORD,JUMPER	2H002303
L8009	0216S71R8J	COIL	1.8 UH	CD6002	06CDL02002	RF CABLE PAL FTZ	CDL02002
L8010	0216S71R8J	COIL	1.8 UH	CP1701	067U010049	WIRE HOLDER	B2013H02-10P
L8012	02167F101J	COIL	100 UH	CP2301	069EV83010	CONNECTOR PCB SIDE	00_6232_008_006_800
L8013	02167F101J	COIL	100 UH	CP2302	069S250639	CONNECTOR PCB SIDE	A2001WR2-5P
L8014	0216A6100K	COIL	10 UH or	CP2601	069GYOT079	CONNECTOR PCB SIDE	09-5000-024-0) 1-006
	021LA6100K	COIL	10 UH	CP3001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
L8015	021LA61R0M	COIL	1 UH	CUSB01	800WFAA006	CUSHION A	
L8016	0216A6100K	COIL	10 UH or	CUSB02	800WFAA008	CUSHION C	
	021LA6100K	COIL	10 UH	Δ DK4001	169G00023A	DECK CD	DVD-KDR777SC
L8017	0216A6100K	COIL	10 UH or	EL001	124120301A	EYE LET	XRY20X30BD
	021LA6100K	COIL	10 UH	EL002	124116281A	EYE LET	XRY16X28BD
L8018	0216A6100K	COIL	10 UH or	Δ F501	080NT04004	FUSE	50T040H
	021LA6100K	COIL	10 UH	FH501	06710T0006	HOLDER,FUSE	EYF-52BC
Δ T501	0481260054	TRANSFORMER,SWITCHING	81260054	FH502	06710T0006	HOLDER,FUSE	EYF-52BC
JACKS				OS651	077Q037001	REMOTE RECEIVER	PIC-37043LO
J8001	060J411029	RCA JACK	MSP-213V1-732_PBSN	TM601	076D0FI080	TRANSMITTER	ORV201N38099
J8004	063G000072	SOCKET,21PIN	035_0_8183_00	Δ TU301	0162K01031	RF UNIT	TCMB0601PD:3D(H)
J8005	060J421023	RCA JACK	MSP-281V3-A	V651	0040F94003	LED DISPLAY	ELF-4M6SDRWBWB
J8006	060J401080	RCA JACK	MSP-281V1-B	X101	100DT4R410	CRYSTAL	AT-49
J8007	060J401079	RCA JACK	MSP-281V4-B	X801	100CT02401	CRYSTAL	HC-49/U
SWITCHES				X2001	100BT01613	CRYSTAL	HC-49U/S
SW651	0504101T34	SWITCH,TACT	EVQ21505R	X3001	100DA32R01	CRYSTAL	DT-26
SW652	0504101T34	SWITCH,TACT	EVQ21505R	X3002	100CT01207	CRYSTAL	HC-49/U-S
SW653	0504101T34	SWITCH,TACT	EVQ21505R	X3003	1001T4R010	CERAMIC OSCILLATOR	EFOMC4004T
SW654	0504101T34	SWITCH,TACT	EVQ21505R	X4001	100BT02701	CRYSTAL	HC-49U/S
SW655	0504101T34	SWITCH,TACT	EVQ21505R				
SW685	0504R01T38	SWITCH,TACT	EVQ11L05R or				
	0504201T32	SWITCH,TACT	SKQNAED010				
SW686	0504R01T38	SWITCH,TACT	EVQ11L05R or				
	0504201T32	SWITCH,TACT	SKQNAED010				
SW687	0504R01T38	SWITCH,TACT	EVQ11L05R or				
	0504201T32	SWITCH,TACT	SKQNAED010				
SW688	0504R01T38	SWITCH,TACT	EVQ11L05R or				
	0504201T32	SWITCH,TACT	SKQNAED010				

ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

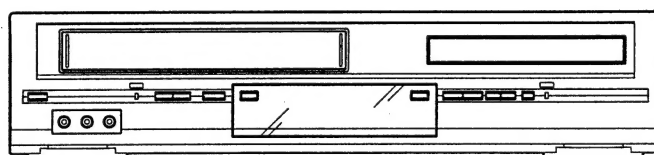
SPEC.NO.	M2C4-12T
O/R NO.	U312510

ORION

DVD/VR-2961 SI

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



**SUPPLEMENT
CHASSIS CODE A**

This SUPPLEMENT must be used together SERVICE MANUAL for DVD/VR-2963 SI.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961 SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
TM601	076D0FI080	TRANSMITTER ORV201N38090	076D0FI090	TRANSMITTER ORV201N38100

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961 SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
101	A2C412T720K	CABINET FRONT ASS'Y	A2C411T720K	CABINET FRONT ASS'Y
101A	701WPJ1200	CABINET,FRONT	701WPJ1202	CABINET,FRONT
101C	711WPD0638	PLATE,DISPLAY	711WPD0640	PLATE,DISPLAY
101D	712WPJ0814	FLAP	712WPJ0816	FLAP
116	7222022630	SHEET,RATING	722202A696	SHEET,RATING
---	793UCD1190	GIFT BOX	793UCDB129	GIFT BOX
---	J2C41201A	INSTRUCTION BOOK	J2C41101A	INSTRUCTION BOOK
---	J2C41207A	QUICK SET-UP SHEET	J2C41107A	QUICK SET-UP SHEET
---	A2C412N975	INSTRUCTION BOOK KIT	A2C411T975	INSTRUCTION BOOK KIT

WHEN REPLACING EEPROM (MEMORY) IC

ADDRESS	TVBR1352Z Series A	CTSGT-8118T Series A
	DATA	DATA
BD	00	40
FD	---	00
FE	---	00
FF	---	00

SPEC NO.	M2C4-11T
ORDER NO.	U332520

ORION

CLASS 1
LASER PRODUCT

DVD/VR-2961B SI

SERVICE MANUAL

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



This SUPPLEMENT must be used together with the SERVICE MANUAL for DVD/VR-2963 SI.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSION.



SUPPLEMENT
CHASSIS CODE A

WHEN REPLACING EEPROM (MEMORY) IC

ADDRESS	DVD/VR-2963 SI	DVD/VR-2961B SI
	DATA	DATA
BA	42	46
BD	00	40
C2	04	28

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961B SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
101A	701WPJ1200	CABINET,FRONT	701WPJ1202	CABINET,FRONT
101D	712WPJ0814	FLAP	712WPJ0816	FLAP
101C	711WPD0638	PLATE,DISPLAY	711WPD0640	PLATE,DISPLAY
116	7222022630	SHEET,RATING	7222022631	SHEET,RATING
---	793UCD1190	GIFT BOX	793UCD1191	GIFT BOX
---	J2C41201A	INSTRUCTION BOOK	J2C44001A	INSTRUCTION BOOK(F)
---			J2C44010A	INSTRUCTION BOOK(D)
---	J2C41207A	QUICK SET-UP SHEET	J2C44007A	QUICK SET-UP SHEET
---	J4E00129	INFORMATION SHEET		DELETE
---	A2C412N975	INSTRUCTION BOOK KIT	A2C441T975	INSTRUCTION BOOK KIT

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961B SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
CD6002	06CDL02002	RF CABLE PAL FTZ CDL02002	06CDL02003	CABLE,PAL CDL02003
TM601	076D0FI080	TRANSMITTER ORV201N38090	076D0FI090	TRANSMITTER ORV201N38100

SPEC.NO.	M2C4-40T
O/R NO.	U312504